THE

SOUTHERN AGRICULTURIST.

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PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—*On the Necessity of a more extensive System of Draining, in the Cultivation of the Sea-Islands; by* Col. JOSEPH E. JENKINS.

[Read before and communicated by the Agricultural Society of St. John's, Colleton.]

The question under discussion, upon which these remarks were made, was the following—"*Is a more extensive system of Draining necessary in the agriculture of the Sea-Islands?*"

Mr. President,—That good must result to the Society from a free and unreserved discussion of these practical questions, cannot be doubted. No agricultural subject can be openly discussed without advantage. They all tend to liberalize the mind; to banish that selfish jealousy which would curtain and wall up the success of some happy experiment; and to extend unto common use, the practical results of the industrious and the observing. I am induced to offer a few remarks upon this question, more from a sense of duty, than the hope of imparting knowledge; for I hold not myself to be a planter of sufficient eminence to found a dictum upon either of those very emphatic words, "I *have*"—or, "I *can*." Nor have my observations been sufficiently *general* to furnish data, either practical or theoretical; most of my views having, heretofore, been sectional, and bounded within the precincts of my own particular planting. It becomes me, likewise, to be diffident, from my knowledge of the ill effects of

partial information, to a *young* and *inexperienced* planter. There is no danger comparable to this. He leans with confidence upon the words of his elder; considers them as oracles; falls to work upon them, without calculating the difference in soil, situation, or local position; finds himself in the back ground; wonders, without ascertaining the cause, that the instructions of a successful planter should fail; and is finally ruined by the best intentions.

How much, then, and I would impress it seriously upon the minds of my young hearers, does it become every planter, in a country like this, where he is free for thought or action, to investigate for himself the principles of his profession; to cast from him the prejudices either of his own theories or the injudicious performances of others; to trace back effects to their causes, that he may form a rational basis whereon he may hereafter build with certainty and safety. The inattentive cry out against the elements, and convert into a curse that which was intended as a blessing. No cloud, at a particular period of the year, skirts the horizon, but it is to him who is unprepared, a source of trembling anxiety; but, to him who has had forethought and reflection, whose experience has not been wasted—who knows the necessity of being prepared for the vicissitudes of our ever varying climate—to him 'tis but an indication of the will of a superintending Providence. He holds his mind in serenity, and feels a cheerful confidence. The maxim of a very intelligent and successful planter, now no more—a man once the ornament of this Society, of whom it may be justly said, like Atticus of Athens, he was beloved by all who knew him, was this—"be prepared for rain:" and should we indulge in a physological speculation on the bearer of the great staple of our Island—the cotton plant—should we consider some of its peculiar habits, or bring to memory our own practical knowledge of its incapacity of sustaining its fruit in lands ill prepared for a wet season—we should be constrained to acknowledge the soundness of the maxim, and grant it founded on correct views and just observation. Let each who hears me, examine for himself this simple question: "How many crops of cotton have I lost by drought?" and then reverse it: "How many have I made by wet?" Allowing for some peculiar situations, and a candid reply would further establish it. The answer to either of those questions would be: *None—not one.* But let the question

be, "how many have you lost by wet?" I should most candidly confess the majority of those of my earlier plantings. This should invite an investigation into the causes of these dismal effects; but as a synthetical inquiry, with appropriate answers, would lead beyond the proscribed limits, I beg leave to incorporate a few in some general remarks.

It appears to me that the first duty of a planter, and a duty wherein he cannot expect much assistance from others, is this: As soon as he takes possession of his plantation, let him be careful in viewing the superfices thereof: and in reference to the present subject, he will find his accuracy in that particular of more importance than any other individual duty he will have to perform. Proper draining depends as well upon knowledge of *soils* as of *position*. There are some soils which absorb too much moisture, even on a declivity; there are others, over which water glides without saturating. Experience and observation soon teach that the first requires a *spring-ditch* to insure the safety of the lands lying below them; whilst the others being less affected, may dispense with one. *Flat* or *level* land, on the other hand, must be universally drained: and here a different, and rather nicer knowledge is required; namely, the knowledge of how *drains* themselves, (that they may be efficacious,) should be made. A plantation may be drained upon every quarter, yet if the position of the land has not been accurately observed, those drains may in the end prove more detrimental than advantageous. What is the intention of a drain? Certainly to relieve the tap-root of cotton from superabundance of moisture—if the drain has not this effect, but on the contrary, dams in the water by its *improperly hauled back edges*, it stands to reason that the object has not been attained, and the planter had better have made none. It has not escaped my notice, and the same observation may have occurred to others, that certain fields have been injured by the very labour purposed for their improvement; and by this simple mistake—the *outlets* of the alleys, instead of being *lower* by some inches, have been left higher, by several, than the centres—thus compelling a pernicious saturation, against the efforts of nature, and the plainest indication of reason. To be ingenuous I might confess, that I myself have, in times past, suffered greatly from this very circumstance, often in the months of July and August, (those most precarious months to the unprepared planter,)

being compelled with all hands, to turn my attention to letting off water from my fields after a heavy shower, by cutting across the beds, and opening the heads of the alleys into the drains. Thus proving myself ignorant of the first principles and main intention of draining; for is not he who is but *then* cutting a drain, when the water should have been off from his field, like the honest Dutchman and his anchor, of whom we have either heard or read? Indeed so difficult have I found it, properly to level back on flat lands, that I have been compelled, on such, entirely to dispense with *single*, and have resorted to *parallel double draining*. These drains, (which with me have proven vastly advantageous—to which, in truth, I may attribute chiefly most of my late success as a planter,) are commonly dug at the distance of from eighteen to twenty feet apart, taking the range of task-stakes, as the centre between them. They are usually one foot wide, and from one and a half to two feet deep; care being always had, to having the dirt from them thrown towards the stakes; thus the labour of hauling back to any considerable distance is avoided; the fertility of the intermediate space is insured by the quantity of virgin earth deposited at the bottom of the beds; which has never failed acting as a positive manure. These are again intersected as nearly at right angles as the *nature of the land will allow*, (for I follow here the course of whatever little sinks are perceptible) by much larger and deeper *leading drains*—as the case may require, from four to six feet deep, and proportionably wide—the field presenting topographically, oblong squares, much extended, not perfectly true, we will admit, but as nearly so as I can get them; by which means an amazingly quick and unobstructed run-off to the water, from every portion of the field, has been given. From this practice, I have observed the following results: *First*, a lessening of the Upper growth, and the tendency to superabundance of weed; my crops, though more manured, being of *shorter growth* than formerly. *Secondly*, a check to that propensity for "second growth," so observable in the fall of the year, attributed very justly to too much moisture; but which I cannot allow to be occasioned by the falling of the rain simply, but to the water being permitted to remain and saturate the lands. In *the third place*, a greater tenacity of the fruit and forms.

That a portion of the *fatness* of fields, (that is to say, those particles of the upper surface which are held in suspension after heavy showers,) is carried off through drains, no one will pretend to deny: and were planters so inconsiderate as to suffer this constant waste without *renewal*, *by manure*, there can be no question, but that the time must arrive when exhaustion and sterility would be the result. But this, I apprehend, would be the case even without a drain; and perhaps even more rapidly. For who can deny, and who knows not, that there is a constant propensity in cultivated lands to have their fertility washed away by the wearing action of water; and is it not reasonable to suppose that where water has a long and uninterrupted course, it must accumulate strength and power, according to the increase of its volume? and where that is the case, that the deleterious effects must be most certain? It strikes me so. Hence is it, that mountainous regions exhibit more sterility than level countries; the water rushing down the sides of hills with impetuosity, bears into the vallies the alluvion of the higher regions, leaving them exposed and naked to the action of an extracting sun. We will not, certainly, deny that the lower grounds are thereby enriched. But to what effect, I would ask, if the help of draining do not secure *them* likewise to the use of man?

Our Island exhibits a medium surface. Our *higher lands* are but gentle acclivities; our *lower grounds*, sufficiently out of the influence of the tide-waters, fertile, and capable of being made very productive under a proper system of draining; and although our *drains* need not have such excessive depth, as in some other portions of the world, yet experience has sufficiently demonstrated, that there are portions of this Island which would be perfectly useless, unless they were resorted to. For my part, I would still extend the system of draining. Were I possessed of lands whereon cottons were apt to "turn blue," I would drain for it; where "flaggy," I would drain for it; where liable to "second growth," still I would drain for it. Is this enthusiasm? Am I, as I have heard said, an enthusiast in draining? Perhaps so, for we are all apt, at times, to bestride some favourite hobby—to foster some darling fancy—to delight in some peculiar, some exclusive idea—before which the majesty of reason herself must bow, if they come in contact. We form theories, and those theories we bring into practical

test, and it takes years of ill-success to convince us of their fallacy.

But are there no lights? Certainly many, and evident! He who runs may read. What do we more distinctly know?—what is there more evident to every planter of the least experience, than that *our high lands with all their poverty to contend against, are more productive, more safely to be depended upon, than improperly ditched low grounds.* Why are they thus,—but that they are less liable to saturation from water. Let, then, no one blindly follow the directions of another. Let no one be overweeningly fond of his own theories. Let him follow the light which nature has set up as a beacon for his direction, and he will find, that when the practice which is successful on one plantation is not so on another, that it is no cause of entire condemnation to such practice, but may be attributed, perhaps more justly, to some difference in *soil*, and the *position* of the land, or the *mode* of *working*. For, as well may a practitioner of physic prescribe to all diseases the same dose, as the planter apply to all lands the same system. We could no more correctly call the one a quack than the other a clod-hopper, let his success be what it may.

ART. II.—*Observations on the Choice of Indigo Seed; by* DONALD B. JONES.

"Orangeburg District, August 10th, 1830.

Dear Sir,—Having learnt by the last number of the *Agriculturist*, that you have for distribution among the Carolina and Georgia planters, a parcel of Bengal Indigo Seed, I take the liberty of requesting you to forward me a few of them. I have for the last six or eight years been an Indigo planter, and although the crop has not been a very profitable one, for the last two years, I do not feel disposed to abandon it, for I still think that, in our pine land, it is as profitable, if not more so, than a cotton crop; and I think, too, that a great deal depends on the kind of seed we plant. I was formerly of a different opinion, but have been otherwise convinced, by seeing a sample of Indigo made by one of our planters last year, from a different kind of seed from any we have ever had, and the Indigo is certainly superior to

any that I have seen made here; and is, perhaps, very little inferior to the Bengal Indigo, but it requires a richer soil than that of our tame or wild Indigo, consequently cannot be raised without manuring. This seed, I understand, was brought from Sumter District, and the weed is known there by the name of the Old Woman's Weed. Having discovered this improvement, I feel anxious to try the Bengal seed, and will, therefore, thank you to leave a few of them with Mr. Samuel Rowan, King-street, Charleston, who will forward them to me, directed to the care of Wm. Munrowe, Esq. Orangeburgh.

I am, respectfully, yours, &c.

DONALD B. JONES.

ART. III.—*On the Culture of the Persian Poppy, and Preparation of Opium; by* DR. ALEXANDER JONES.

"Lexington, Geo. July 15th, 1830.

Dear Sir,—I have forwarded you the inclosed information on the culture of the poppy and preparation of opium. If you think it worthy of insertion in the *Southern Agriculturist*, it is at your service. The first is a letter from Dr. G. W. Carpenter, addressed to me, to which I have added my experience on the subject.

Wishing your great success in your useful labours, I remain, dear sir, your most obed't serv't,

A. JONES.

"Philadelphia, March 2, 1830.

DR. ALEXANDER JONES.

Dear Sir,—Your polite favour of the 18th ult. came duly to hand, and its contents received my most particular attention. I purchased for you at one dollar, one ounce of the seeds of the *Papaver Alb.* or *Somnifeurm*; they are perfectly fresh, and will readily grow. I have directed them to the Hon. W. Lumpkin, at Washington, as you requested, who will bear them to you. It is impossible for me to give you much practical information on the *culture* of the poppy, but will give you my sentiments, deduced from various writers, on the subject.

Writers differ as to the mode opium is obtained from the poppy. Some that it is extracted from the heads, stalks, and leaves, by boiling and inspissation by heat; and others, that it was composed of the milky juice, obtained by wounding the heads; and some, again, that it was merely the expressed juice inspissated by heat. Kœmpfer, who lived several years in Persia, asserts, that it is obtained from the heads, by incision. The incisions, he says, are made with a fine edged knife, in the evening, and the juice being collected next day is inspissated to the consistence of opium. (See Amænitates Exotica Fasc. 3, Obsev. 15.) A similar account is given by Garcias, (see *Historia Aromatum et Simplicium*, lib. i. c. 4.) But that our opium is obtained by incision, is placed beyond a doubt, by Mr. Ker, who has given a very accurate description of the manner in which the poppy is cultivated, and the opium obtained from it by incision, in the province of Bahan, in the East Indies. The seeds, according to him, are sown in quadrangular areas, the intervals of which are formed into aqueducts for conveying water to each area. The plants are allowed to grow six or eight inches from each other, and are plentifully supplied with water till they are six or eight inches high, when a nutrient compost of dung, ashes, and nitrous earth, is laid over the areas. A little before the flowers appear they are again well watered, till the capsules are half grown, when the watering is stopped, and they begin to collect the opium. This they effect by making, at sunset, two longitudinal incisions, from below upwards, without penetrating the cavity, with an instrument which has two points, as fine and sharp as a lancet; the incisions are repeated every evening, until each capsule has received six or eight wounds, and they are then allowed to ripen their seeds. The juice which exudes is collected in the morning, and being inspissated to a proper consistence, by working it in an earthen pot in the sun's heat, is formed into cakes, for sale.

Besides this very particular account given by an ocular witness, of the manner in which opium is extracted by incision, in the East Indies; we have further proof that all produced in Persia, Ratolia, and the other countries which supply us, is obtained in a similar way; for, considering that opium may be extracted by incisions from the poppies of our own climate, perfectly similar to that imported from

these countries; while neither the extract of the poppy procured by boiling, or the inspissated expressed juice, bear any resemblance to it. These facts seem to have been first ascertained by Dr. Alston, (Medical Essays, vol. 5.) I have myself extracted from our own poppies in this city, several ounces of opium, which equalled in quality and appearance, the most superior quality of the Turkey opium. In obtaining it, I followed sometimes the method mentioned by Kæmpfer, making five incisions at a time; sometimes that described by Mr. Ker, making but two, and I think the one answers in the end just as well as the other. The dark colour of the opium, as I found during these experiments, is in some measure, though not entirely, owing to iron instruments employed in collecting it; the chalybeate striking a black colour with the astrigent matter of the juice, for when I employed a sharp piece of glass in making the incisions I found the opium produced of a clearer reddish brown than that usually observable.

An acre yields in the East Indies sixty pounds of opium. Whether in this country it could be obtained in equal quantity, I cannot pretend to determine; the spot which produced the plants from which I extracted the opium, being a rich garden mould, and so small that it would be wrong to hazard a conclusion on this head. The experiment, however, may easily be made, and seems highly worthy of attention. Any quantity of it could be disposed of, and if any surplus remained after our own demands, a ready market would be found for it in the East Indies, where its consumption is very considerable, and prices generally high. I am firmly of opinion that the soil and climate of Georgia is well calculated for the cultivation of the poppy and production of the opium, and should be extremely happy to hear from you, your success with it.

I remain your friend,

G. W. CARPENTER."

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I planted about half of the seeds which Dr. Carpenter had the goodness to send me, in my garden, about the last of March; and reserved the balance to a later period. The soil was of a grey sandy texture, which had received a considerable quantity, for one or two years, of

well rotted manure. The spot on which I sowed my first parcel of seeds comprehended a space of twenty-eight feet long, by twelve or fourteen wide. They were drilled in rows about two feet apart, and covered very shallow; they came up in about ten days very thick—so much so, that I was compelled to thin out more than one-half of the plants, and then left too many standing. The spring was exceedingly seasonable, which, with light work, caused them to grow off very luxuriantly. They bloomed by the 1st of June, and bore large white flowers. The petals soon dropped and left the capsules naked. By the 15th of the same month the heads had sufficiently matured to permit of my incising them. I made about two incisions on each head, late in the afternoon, and early next morning gathered the opium, or sticky juice which adhered to them, and placed it in the sun to harden. The incisions were repeated till eight or ten were inflicted on the same capsule, being careful not to let my knife penetrate the cavity of the head, which, if it did, I found was very apt to arrest the further growth of the capsule, and consequently stop the flow of juice. When I made longitudinal incisions, I found a great deal of juice would descend by its gravity and drop on the ground beneath. To avoid this loss, I made my incisions rather circular and upwards, from the bottom of the capsule to its summit; by this means the juice would not collect in a sufficient body to force its way to the ground, or the leaves beneath.

I think the juice ascends, or forms principally in the longitudinal vessels that are seen in ridges around the body of the capsules, coming to a focus at top. In the slight horizontal turns I gave my incision, sometimes two or three of these vessels would be divided; whereas, in the vertical incisions you could only divide one vessel, or perhaps none. I found, however, it would not answer to make a complete horizontal incision around the entire head, as by that means I divided all the vessels, and at once stopped the furthur growth of the head.

About the time I began my incisions, a severe drought set in, which caused my plants not only to cease growing, but literally to burn up. The stalks and leaves soon became dry and hard. Many capsules shrivelled and died before maturing. So that my experiment cannot be considered a fair one to test the success that would ordinarily

attend their cultivation in this part of Georgia. I planted the other half of the seeds about the last of April, soon after which some hard rains fell, which baked the earth so that not one came up. From the first planting before mentioned, I made a *quarter of a pound of good hard opium*, equal to any Turkey opium I have ever used. I also saved from the same plants, *one and three-quarters of a pound of seed.* I left many capsules untouched, for the purpose of bringing good seed. I find the seed does not mature so well in those that are incised as in those that are not.

Under favourable circumstances, I think I could have saved at least a pound of opium from the same plants. My largest capsules when dry, measured seven inches in circumference. The stalks generally attained the height of four or five feet. I am satisfied that one hand can cultivate as much ground in poppies, as cotton. In fact, it is a culture that very much resembles cotton in the distance you give it, and the kind of labour you bestow on it. I cannot positively say how much *opium* an acre of ground, in a favourable season, well cultivated, would yield; but think under such auspices, I should not hazard too much to say *sixty pounds at least.* This quantity, at the New-York price, say $5 per pound, would amount to $300. Its collection from the heads is very light labour, and can be easily performed by women and children. It has the advantage of cotton in being ready for market as soon as it is gathered; while cotton is attended with the expense of ginning, bagging, and heavy carriage. The carriage of opium, from its great value and lightness, would be trifling. During the late war its price rose to $15 per pound. There never can be much danger of lessening its present value by its cultivation in the South, as it is extensively consumed in Europe and the East Indies, where it commands generally a better price than with us. It is true, that its cultivation can be made more profitable with us, if the *abominable Tariffites* would prohibit its introduction from Persia, as they have with as little reason done with many articles from Europe. I have placed parcels of seed in the hands of several physicians, who have promised to make faithful experiments with them. If any of your readers should desire any, I can spare them some, if applied for, free of expense to me.

Respectfully your's,

ALEXANDER JONES, M. D.

N. B. I last spring received some poppy seeds in some large dried capsules, from my friend Dr. Geddings, of your city. I planted them with my last parcel, but none came up. I suppose they were injured. A. J.

ART. IV.—*Account of an unsuccessful attempt to harvest Indian Corn, by cutting down the Stalks, with the Ears and Blades on them; by* A PLANTER OF ST. ANDREWS.

"Charleston, July 23, 1830.

Dear Sir,—Having derived considerable pleasure and information from the perusal of your useful periodical, I shall endeavour to contribute my mite to its pages, according to promise.

It is of importance that all experiments in agriculture, whether successful or not, should be made known, for reasons that are obvious. I shall, therefore, state one which I made a few years ago. I was pleased with a method which is recommended by *Arator*, of harvesting Indian corn, which is principally intended to increase the food of cattle, whereby more manure may be obtained. When my crop was well ripened, I caused five acres to be cut down with a knife, with all the blades and corn upon it. It lay upon the ground about ten days after it was cut, owing to almost incessant rains; however, with great difficulty, I carted it home to the settlement, a distance from the field of about three-quarters of a mile, and stacked it up. Here, I think, was the source of my failure; not knowing how to stack it properly, the rain penetrated the stack, and as I felt fearful of such a result, I had it examined daily. In about a fortnight a slight heat was felt, and I thought it best to pull the stack to pieces, and clear the corn from the shuck. About one-fifth was completely damaged, and the stalks and blades were, by subsequent exposure to the weather, rendered unfit for the purpose of food for cattle. So the experiment was a complete failure. However, I still think well of the plan, and am convinced that if it be properly stacked, we might obtain a great addition to the food of stock, and increase of manure. I threw my stalks into the cattle-pen, and from its containing a great portion of its juices unimpaired,

and being half cured fodder, was a great help to my stock of manure.

As I contemplate repeating the experiment, I hope by stacking it with more care, to be enabled to communicate a different result.

Respectfully your obed't serv't,

A PLANTER OF ST. ANDREWS.

ART. V.—*On Plantation Gardens, and the Culture of Vegetables; by the* EDITOR.

(Continued from page 525.)

Peas.

This most delightful vegetable requires no recommendatory notice from us to bring it into general use, for so well is it known, and so highly estimated, that there are few gardens which have not a liberal share of ground allotted for its culture; but the great extent necessary to grow it on, compared with other vegetables, has always limited its culture where inter-croping has not been understood or practiced, and very often the quanty grown is not equal to the demand, or some other vegetable is excluded, which need not be under judicious management. In a small garden, inter-croping must be resorted to, but this necessity can seldom occur on a plantation, where ground in abundance is always at command, and there the crop of peas should never be mixed up with any other, for when cultivated alone, it can be better attended and gathered, than when the intermediate spaces are occupied with other vegetables. Moreover, the imtermediate crops are very liable to injury from the carelessness of the negroes who may be employed, either in working among them, or gathering the young pods when they come into use. If any vegetable is raised in large quantities on a plantation for the use of the slaves, this certainly should, for it is not only extremely wholesome and palatable to them, but interferes less with the regular operations of the plantation than any other. They are grown during the winter, require little preparation or culture, and but a very small supply of manure—none if the land be but

moderately rich. They can also be cultivated on the ground intended for *slip potatoes*, for which they are a good preparatory crop, and afford, if listed under before they dry up, a supply of manure, greater than they consumed.

The varieties are very numerous, so much so, that it would require considerable space merely to enumerate them, and others are yearly brought into notice. We have cultivated many, but finding as yet none preferable to the old varieties, we still continue to sow the Charletons and Marrowfats. For the plantation garden we prefer the Dwarf Marrowfats, when they can be obtained pure; but that they cannot always be had so, we know from sad experience, having had at least six varieties of peas sold us under this name, at different periods.* We shall confine ourselves to this variety.

The month of November is fully as early as any peas can be ventured, and as there is some little risk attending even this sowing, we would recommend that the *general crop* be not put in until the middle of December, and the sowings may be continued at intervals of two or three weeks, until the month of February. But these last do not so well, and after that period, although some may be obtained, yet the crop generally is very scant, and as there ought by that time to be an abundant supply of other vegetables, they are not much sought after.

In preparing the ground, let the plough be used freely, and having it well pulverized, proceed to lay off rows four feet apart, and let them be as deep as can be made by running the plough twice in the same furrow; this will be more necessary if manure is to be used, for peas should be covered at least three or four inches deep. Some prefer sowing two rows very near to each other, and then leaving a greater space between them. This plan will answer very well in the garden where the hoe only is to be used, but cannot be successfully put in practice in the field culture, unless it is intended to bestow considerable attention, and use the hoe between the contiguous rows—otherwise the single rows are to be preferred. If the ground be moderately rich, a little lime only need be used, but if, on the contrary, it be not in good condition, let some manure from the stable or cow-pen be strewed along the furrows, and this will

* The best Dwarf Marrowfats we have ever had, were some purchased the last year from Michael Floy, seedsman, New-York.

be improved if a little lime be also used. But it is sometimes inconvenient to spare these, and it is desirable, therefore, to know what substitutes can be resorted to. We have employed both the swamp and the salt-mud, with success, but they require some care, and a knowledge of their properties, before they can be used with safety, especially the latter. With respect to the swamp mud, all that is necessary is to ascertain that it contains nothing hostile to vegetable life, for we have at times had our crop injured by its application, when we have neglected this precaution. If it does not, it may be freely used fresh from the swamp, and the peas sown immediately on it, without any addition; but we have generally preferred having lime scattered over and incorporated with it, before we sow them. If, on the other hand, it be found to contain some noxious properties, it is best to have it drawn from the swamp and left exposed to the action of the atmosphere for at least one season, and during this time to be once or twice turned over. An addition of lime or stable manure, or salt-mud, will form a most valuable compost, which will be still better if they all be added, and well mixed together before using them.

The use of the salt-mud requires more care. The saline particles which it contains, is hostile to vegetable life, whenever it is in excess, and consequently the only way to manage, is, either to neutralize it in some measure, or diffuse it through a larger mass, by incorporating it with other substances:—we prefer the latter mode, and in this way have generally employed it, and we think the best crops of peas we have ever had, were from those plants which were manured with a compost of marsh mud and stable manure, in about the portion of one-third stable manure to two-thirds of mud. We have also had excellent crops from swamp and marsh mud, formed into a compost, by placing them in alternate layers. But it must be borne in mind that all compost heaps in which salt mud is an ingredient, ought to be made sometime, and well mixed, by frequently turning them over before they are used. There is another caution to be given, if salt mud forms any considerable portion of the compost, and that is, that the peas must never be sown on the manure, for the salt would rot them before they have sprouted, or so injure their vegetative qualities, that they will never recover or produce well. It is the safest plan, whenever salt-mud is used, to leave at least one inch of earth intervening between the peas and the mud.

In this way we have managed them with considerable success. The quantity of seed necessary for an acre is about one and a half bushels. Some sow less, and others as may as two bushels, but our experience has been in favour of that quantity. If sown in single rows made by the plough, as directed above, there will be a space of six or eight inches wide throughout, and the peas should be scattered as evenly over it as possible. The hoe will undoubtedly cover them with greater neatness than the plough, but the latter may be used for expedition sake, as there is little danger of burying them too deep. They should, however, be carefully and evenly covered, so that they may not shoot out in every direction. When the young plants are about three or four inches high, they ought to have the earth stirred around them; this can best be done by the hoe, and as only the rows need now be gone over, it will not take much time. When six or eight inches high, they should be again gone over, and have earth drawn up to them, which will afford them considerable support. The intervals between the rows ought now to be broken up, and cleared of weeds either by the cultivator or plough. At this time they should be *rodded*, that is, have sticks or bushes stuck along the rows, to support them, and on which they are to climb. These should be about four feet high, and if stuck in a sloping direction, so that the extremities of the lower branches of the bushes be but a few inches from the ground, a less number will be required than when they are placed in an upright position. Smaller bushes can be stuck at those places where this cannot be effected, which will assist the peas to mount up to the larger ones. When it is intended to have them stuck, the operation ought not to be delayed long, for they ought not be permitted to trail on the ground, but should at once mount up on the sticks placed for their support, and some gardeners affirm that the productiveness of the crop depends in some measure on the earliness and manner in which this is done. It will only be necessary to give one more hoeing, and the crop can be laid by, or if you have a skilful ploughman, the plough may be used, which should always turn the furrows towards the plants.

The providing for and sticking of the peas, is the most laborious part of their culture, and takes considerable time. On a cotton plantation the cotton stalks will answer every purpose, and as they have to be cut down, whether used for

this purpose or not, the labour of providing sticks may be considered as saved, but on other plantations, the providing of these forms a serious objection to a more extensive culture of the pea. Fortunately, however, the rodding of the peas is not absolutely necessary, and although there can be no doubt but that peas, well rodded, will bear more than those which are not, yet the additional produce is by no means adequate to the additional labour required.

Should it be intended to pursue this latter mode of culture, the peas should be sown on beds or ridges, and at each working they should have the earth drawn well up to them, in order to support them. When they get too tall, to support themselves longer, which will be about the time they are blossoming, let the whole ground be gone over with, either the hoe or plough, the soil well pulverized and cleared of weeds, and lastly, let the earth be drawn on the peas from one side, which will cause them to recline altogether in the same direction; the object of this is to prevent the wind from whipping them, when more grown, and tossing them from side to side, which would be the case if earth was not placed on their stems in sufficient quantities to keep them stationary. The reason of their being sown on ridges is to prevent their being injured by wet weather.

There is also another mode, which is this: Two rows are sown contiguous to each other, say about two feet, and when they have grown sufficiently, they are made to incline towards each other. They meet in the centre, their tendrils become intertwined, and thus they afford mutual support and grow up.

About the middle of April peas are in their greatest perfection and abundance. Where the earlier varieties have been sown, or the season has been particularly favourable, they may be had by the last of March or commencement of April. If a few be wanted earlier, they may be had by topping the plants when they have produced from four to six blossoms. This plan is pursued by some market gardeners, but it is too troublesome for a general crop.

(To be continued.)

ART. VI.—*Observations on the Bearded Rice; by* A BLACK-RIVER PLANTER.

"Black-River, August 21, 1830.

Dear Sir,—I observe in your useful publication, a piece signed "*A Georgian*," relative to the bearded rice. I have for two years planted this rice, and feel no hesitation in saying that many objections to it are altogether unfounded. I find the bearded rice heavier and more productive than the white or gold seed. Many have supposed that it would not do well in tide land, but experience furnishes ample proof that the reverse of this is the fact. Others say it is tasteless and insipid. I have never been able to discover any difference; nor do I believe there is any. Another objection is, it will not stand the pestle well. This (if fact,) may result from a late harvest, when the rice is too ripe, and would injure any rice in the same way. Another objection is, that there is a spot in the grain which has a chalky appearance, and will injure the sale. The eye of every grain of rice (so termed,) has the same appearance, and the same objection would apply. The truth is, negroes are unwilling to harvest the bearded rice, for the same reason they would rye or any grain of that class, which seems to be the principal objection that can satisfactorily be urged against it. I find this rice matures earlier, grows taller, is more productive, sustains less injury from freshets and birds, than any other. The harvest is more laborious; but the threshing less so. In pounding, the beard is supposed advantageous; it assists in giving the grain a bright and pearly appearance. I would recommend to every rice planter to make a fair trial of it, and satisfy himself. The black and bay land, where the rust or spot so frequently injures a crop, produces a good crop when planted in bearded rice. Nor have I been able to discover any reason or cause which would operate against the general introduction of it in tide lands.

I procured last year seed enough to plant a little more than half an acre; being near the yard, it was injured by the poultry; in the balance of the field I planted gold rice. The bearded rice, I think, would have made one-fourth more to the acre; the difference was perceptible in the growth, the former being one foot the tallest. Being absent at harvest, it was not measured. However, I made enough to dispose

of twenty or twenty-five bushels to applicants for seed, some few bushels were used to see if it was as good to eat as the other, and then I planted a field of five acres and a half with the balance, which is now a beautiful field of rice, and from its present appearance will produce much more than the same quantity of land on the plantation.

Wishing the "Southern Agriculturist" its merited success, I am respectfully your's,

A BLACK RIVER-PLANTER.

Georgetown District, So. Ca.

We hope that our Correspondent will inform us of the result of this experiment. We wish to know not only the product of the five acres, but also his treatment, whilst under cultivation, its weight per bushel, number of bushels per barrel, and its appearance after being prepared for market—comparing it with the gold seed rice. We have scarce ever met with a grain, of which such contradictory opinions have been given. Some have extolled it highly, whilst others have thought it not worth cultivating; most of them agree as to its productiveness, but on no other point. These experiments having been made on small scales, our planters are unwilling to give publicly, an opinion, until further experience shall have tested its value. This year perhaps will enable some of them to form a judgment of it, and we hope that they will not fail to favour us with a communication on this subject. Indeed we request all those who have planted it to communicate to us the results of their experiments. It will enable our planters at once to determine whether it be adviseable to prosecute the inquiry farther or at once to drop it. If the variety possesses the good qualities claimed for it by its friends, it cannot get too soon into general culture, but if it is inferior to the gold seed rice, the sooner it is abandoned the better. Perhaps it may be found not equal to the gold seed, on low grounds, (such as are usually cultivated in rice,) and yet very valuable as a highland crop. If any of our readers have cultivated it as such, we shall be happy to hear from them on the subject.—*Ed. So. Ag.*

ART. VII.—*On Protecting Rice-field Banks with Bermuda Grass; by* AN ALATAMAHA PLANTER.

"Darien, September, 1830.

Dear Sir,—I have noticed in some of the papers the ravages made by the late gale on the rice-field banks, North of Charleston, and no doubt those in the vicinity have suffer-

ed, and it is hinted by some one that osiers planted on the exterior margin would serve to strengthen them. I have found bushes, weeds, or grass a protection, as it serves to break the action of the water; but the great damage that banks sustain in a gale, are invariably on the interior margin, as it leaps into the field. As the tide recedes, the water rushes through those breaches made by the advance of the tide, and in a few hours will give days, and if not immediately attended to, weeks of work, rendering those parts always liable to the same accident.

The last fifteen years have afforded me some experience on this subject, therefore I take the liberty of suggesting the Bermuda Grass, as the only thing to secure rice-field banks against these incursions of the tide, to which we are so liable. The bank should form an angle, if possible, less than 45 degrees from the interior margin—if too erect the grass will not take hold. It should be planted in February, March, or April, about eighteen inches apart, on the edges and sides of the bank. In one season the banks will be covered, and will, when it is well fixed, resist the action of water for a length of time. Some may be fearful that it will overrun the margins:—if in dry culture it will do so, if in rice, there is no danger, being of all grasses one that is the most easily destroyed by water. After the gale of 1824, which was most severely felt here, very little damage was done to those banks that were well grassed. The banks remained firm, and had the appearance of being combed, or harshly brushed. In dressing and raising banks, throw on the top and sides—the grass soon finds its way through, firmly uniting the old and new parts. Whenever I put up a new outer bank, it is immediately planted with grass, and most care taken of the weakest parts. Unfortunately this valuable grass will not grow on salt or brackish marsh; on those banks I plant a species of rush, or Tossoc grass, which, in a short time, will as firmly unite the bank as the Bermuda grass.

Should you think this communication of any value, do give it a place in your useful periodical.

AN ALATAMAHA PLANTER.

Art. VIII.—*On Marsh Mud as a Manure; by* Robert Ralston.

Sir,—The observations that follow are not intended for planters that have already brought the application of marsh mud into a system; but to those who are commencing, it may perhaps be of service.

In the season of 1815 I rented a piece of land on Bohecket creek, on John's Island, of the late Mr. Thomas Mathewes. It had been planted about in patches, and those were much exhausted, but the land was light and kind. In the month of June the cotton on these spots was very diminitive.

The season having been favourable for killing grass, I had my field perfectly clean in the month of June, and I prepared some hand-barrows and carried the mud from the creek to those particular spots, and broke it round the hills of cotton—the effect exceeded my most sanguine expectations.

In 1816, I moved to my present place of residence, on Daniel's Island, and soon tried the mud in the same way I had done on John's Island, but with very little effect, if any. I also tried it by plastering it in its crude state in the alley, and listing on it, but I could see no beneficial effects, and I left off the application of the mud for some years, and confined myself to the application of the vegetable marsh, cowpened, and rotted in heaps, but I found I could not obtain a sufficiency of that to answer my purpose, and have been in the habit, for the last three or four years, of making a compost with the mud and the green marsh, and also that rotted in my cow pen, and have experienced the most favourable results from it, except last year, when their was a general failure. I am under the impression, to pursue the system to the best advantage, as much of the mud as we intend to use the following year, should be taken out after we have laid by our crop, and laid in alternate layers of the vegetables and mud, the mud chopped as fine as possible and afterwards turned in the winter, and chopped again, as I am convinced we add to its value as a manure, the finer we chop it. I have also, the last year, in place of confining it to the list, scattered it between, and mixed it with the soil. I must observe, the land I plant has a stiff clay for a subsoil, and is flat. I think it is also advantageous to have our compost heaps lo-

cated in the summer and fall, as near the place in our field we intend to apply it as possible, for if the winter should prove rainy, and the lands low, it is difficult, if the distance is great, to distribute the manure in a given time; and I have no difficulty in using oxen during the summer, by feeding them, and driving them cautiously.

I have not yet tried to mix lime with this compost, but am convinced it would act as an auxiliary in the decomposition, as I have tried it on a piece of reclaimed marsh land, in every other row, as an experiment, only a double handful to each hill, and the effect is quite visible.

Respectfully your's,

ROBERT RALSTON.

Daniel's Island, July 17th, 1830.

ART. IX.—*On the first discovery and application of Salt Mud as a Manure; by* J. S. A.

In the November number, 1829, of the "Southern Agriculturist," is a letter from the Hon. Wm. Johnson, Judge of United the States Supreme Court, "*On the use and manner of choosing and applying salt marsh mud as a manure.*"

That the sea-board of South-Carolina and Georgia has been more benefited by this discovery than any other since the introduction of the cotton plant, there can be but little doubt. The reduction of capital requisite to carry on the successful operations of the planter, by rendering one half of the quantity of land formerly required, sufficient. The great saving of labour in the clearing of new lands, and the cultivating a less quantity of the old. In increasing the quantity, and improving the quality of our cotton; and, above all, by rendering immensely valuable a large portion of otherwise valueless lands, by resuscitating, fructifying and placing them on an entire equality with the best virgin soil. The discovery and application of this manure justly entitles its author to our warmest gratitude. The most common observer of our agricultural concerns, must have been struck with the rapid strides made within a few years in this honourable and useful pursuit. We are a half century in advance of our agricultural condition, but five or six years ago; and to what is this attributable, I would ask? Why, principally

to the increase of agricultural societies through the State, and the consequent dissemination of useful information, derived from practical and scientific planters. As a proof of this assertion, this very discovery of the marsh mud has been known, and successfully practiced for more than twenty years, by, as I believe, the original discoverer and author of the present system, Mr. James King, of St. Paul's Parish, unquestionably one of the most *practical*, useful and scientific planters in the State, and one to whom our agriculture is greatly indebted. This gentleman is known to all the Island planters to have been the author of the present system, as detailed in the Judge's letter, above alluded to, and notwithstanding the Judge is of opinion that he is entitled to the merit of the discovery, I think, if he is disposed to compare notes, I can convince him from facts and dates, he is under a delusion. I do not deny that many individuals had applied this manure to garden purposes, long antecedent to Mr. King's application of it to the cotton plant, but that it never was *successfully* used for the purposes to which it is now applied, previous to his adoption of it, I am thoroughly convinced. If the Judge, or any other individual ever applied this manure without success attending the experiment, it was a detriment rather than a benefit to the cause; and if successfully, why have they not continued to follow the practice ever since, as Mr. King has done? No sir; to this gentleman is due the entire merit of the discovery, and to make that known is the object of the present communication. J. S. A.

ART. X.—*On the Management of Silk Worms; by the* Miss WATIES'.

(Copy of a Correspondence between Elias Horry, Esq. Corresponding Secretary of the Agricultural Society of South-Carolina, and the Miss Waties'—Communicated by the Society for publication in the "Southern Agriculturist.")

"Agricultural Society, Charleston, June 16, 1830.

Ladies,—It affords me pleasure to inform you, that the Agricultural Society has awarded to you the premium of $40, for the fine specimens of silk which were raised by you.

I take the opportunity which offers by Mr. Alfred Huger, of sending you the premium, and also a copy of the pro-

ceedings of the Society, on the occasion. I must, however, request of you to furnish us with a statement of your method of raising and preparing the silk; a similar requisition is made on all occasions where premiums have been awarded by the Society. Mr. Huger in his letter to us, mentions—"That the food of the worms had been the leaves of the white mulberry, and occasionally when these could not be obtained, others were substituted." Be so obliging as to state what the substitute was. One of the specimens, I thought equal in brilliancy and fineness, to any Chinese silk. About two years ago, a beautiful specimen, very fine and brilliant, raised by a lady near Georgetown, was exhibited to the Society, and we were informed that the worms were fed by her indiscriminately with the leaves of the white and the black mulberry. It was observed that some of your specimens, particularly the yellow, are coarse. Was this caused by the food substituted for the white mulberry leaves?

The kinds of mulberry which grow in this State, are the "morus alba," "morus nigra," the *white* and the *black;* and I think I have seen the *red*, "morus rubra." The white is alone used in China. The kinds used as the food for silk worms in Italy and other parts of Europe, particularly towards the South, are first the *white*, then the shining leaved, the oblong, the broad leaved, the dwarf, the largest leaved, the Constantinople, and the rose leaved: all these are of the genus "morus," and are procured from New-York. I mention these species of "morus," because a difficulty often occurs in procuring food for silk worms, and some of these species may yield the food more abundantly than others. The black is supposed to afford the richest food for the worms, but probably too rich for those which have been accustomed to the *white*. Experience, however, is the best test. The mulberry which is planted in the streets of this city, is not a "morus." It is the male Japan paper mulberry, called "Broussonetia papyfera, Inas." The "female tree," we now also have here, which bears a fruit somewhat curious. It appears to me that the leaves of this tree would be too harsh for silk worms.

I am, very respectfully, ladies, your obed't serv't,

ELIAS HORRY, *Cor. Sec.*

To the Miss Waties', Marden, near Stateburg, So. Ca.

REPLY.

It is difficult to furnish a statement of our method of raising and preparing the silk, sent to the Agricultural Society, as we used very little method in the business; but our general plan was to keep the worms as clean as possible—to give them as much as they would eat, and to admit all the air we could. But as the leaves were brought from a distance, the meals were often irregular, and as we were obliged to exclude the wind, the room was generally too warm.

The worms were fed occasionally on the wild mulberry, but not indiscriminately, as that would have been fatal. We only know *two* kinds of mulberry, the common wild mulberry, with a coarse rough leaf, and the smooth leaf, or white mulberry, as it is called, although the fruit is generally either red or black. The form of the leaf is very variable, and the same tree will often have leaves of all the different forms that are said to designate the different varieties. But we know we have the right kind, for our large trees were planted on the Hills many years ago by a German, who intended to make an establishment for raising silk, and our young trees are from imported seeds. It is not to be denied, that the common wild mulberry will make good silk, but we have ascertained from several experiments, (to which we give great attention,) that the worms that feed upon it, live ten or fifteen days longer than those fed on the white mulberry. Of the five substances of which we are told the leaf is composed, it seems that the wild mulberry has a larger proportion of the *fibrous* substances, and less of the *resinous*, and of course the worm takes longer to elaborate the silk; and this is a great evil, for it not only gives the difficulty and the trouble of providing food and attendance a fortnight longer, but it exposes you so much longer to the danger of a damp season, and carries you so much nearer to the summer heat—both very injurious to the health of the silk worm. The cocoon, too, is smaller, and the colour less bright, though this last may be no objection, as the colour is always extracted before the silk can be used. The different qualities of the silk sent to the Agricultural Society was not caused by the food of the worm, but it might be from the nature of the worm itself, for there are three kinds—the white is the finest, the lemon coloured silk the next, and the buff colour-

ed the coarsest. The difference is so inconsiderable that I believe it could only be discovered by those persons who reel, or by a manufacturer of some experience. Some of our silk appeared coarser than the rest, not from its quality, but because it was reeled with many cocoon threads put together, which is very troublesome, but was done so to suit a manufacturer of carriage lace, who directed it in that way. the ordinary way is to put ten or twelve cocoon threads together, and that which seemed fine of ours was done so. We have used what is called the reel of Piedmont, imported from Philadelphia.

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"Stateburg, June 17, 1830.

Dear Sir,—The above is the statement furnished by Miss Waties, in reply to the queries contained in your letter, which I have had the pleasure to deliver. I have visited the silk house, with the ladies, who are its founders, and while I withhold any expression of respect and admiration for the energy which suggested, and the perseverance and skill which has perfected this enterprize, may I be permitted to congratulate the Society, which is the first to extend to it its fostering and encouraging hand.

I am, dear sir, with great respect and regard, very sincerely your's,

ALFRED HUGER.

ELIAS HORRY, ESQ.

ART. XI.—*On the Cause of the Rot in Green Seed Cotton; by* A PRACTICAL PLANTER.

"Near Mount Vintage, P. O. Edgefield District, So. Ca.
8th September, 1830.

Dear Sir,—I have been led to the following remarks in consequence of a piece in No. 4, of the "Agriculturist," under the signature of *An Ogechee Planter*, particularly in that part of it which treats of the rot in green seed cotton. The Ogechee Planter is correct, (as far as my knowledge extends,) that the rot in green seed cotton is occasioned by insects, but I cannot agree with him in the manner in which he supposes this insect is produced. If he had exa-

mined accurately the punctures to which he alludes, as made in the cotton boles, he would have discovered that it terminated in rot, and if he had made further investigation, he would have found no deposits made in the pods to produce insects, or that the decay of the pods produced any thing like the insect that destroys it—like all other putrefied or decayed matter, small maggots may be seen, but not of a class to cause the evil in question.

What I believe to be the primary cause of the rot in cotton, is, a bug or fly, somewhat resembling what is termed the fire-fly, producing when crushed, a sour and disagreeable smell. They are the same bugs that are found on the artichokes in the months of April and May,(with which every person must be familiar who cultivates that delicious vegetable,) and resort to the fruit as they do to the cotton pods, at a later period, probing with their long proboscis, which extends nearly the length of their body, under which it is secured when they are inactive—rendering the artichoke black speckled, shrivelled, and less fit for use than such that have escaped them; but they cannot probe deep enough to destroy the vegetable marrow of which it is composed, so well protected by outer coats.

It is almost incredible, from the small number of these insects that are seen in the day time in the cotton fields, and which require the most diligent search to find them, that such extensive injury can be done by them. It is presumable that they keep themselves under cover in the day, in some parts of the fields, or adjacent to them, and that their work of destruction commences when the day shuts in. Working by double tides, in the nautical term. There may be other bugs that contribute to the rot in cotton, but they must be of a kindred family.

If a puncture is not found in every cotton pod that rots, and where this puncture is made a green spot, getting darker and darker, and enlarging rapidly, until it terminates in a black-rot, I am much deceived. It is admitted that the rot is most prevalent in wet seasons, and among luxuriant cotton, but it is not caused from the state of the weather, or the growth of the plant, only so far as humidity promotes the increase of insects, and renders the pods more susceptible of injury, by their growing and tender state; the bug can then the more easily introduce his poisonous dart, and do more rapid execution—whereas, in dry seasons, the pods are tur-

gid, and in a great measure resist his attempts. A man will eat double the quantity of tender beef than that which is tough, not only from the difficulty in mastication, but from its being also more agreeable to the palate.

Well, after all, and admitting that we have discovered the cause, where is the remedy? The planters in the Bahama Islands exhausted all their ingenuity to prevent the ravages of the caterpillar and red-bug; making fires nightly in their fields; concussion by firing cannon, and fumigating with sulphur, all of which proved abortive, and they had at last to remove to Georgia, but to their utter astonishment, found the enemy had preceded them. If we resort to Sir Joseph Banks' plan of catching insects, more expert hands must be employed than was Sir Joseph.

A PRACTICAL PLANTER.

ART. XII.—*On the Cultivation of the Sweet Orange; by* GEO. J. F. CLARKE.

NO. I.

"St. Augustine, 10th August, 1830.

Dear Sir,—I send you some remarks on our celebrated fruit, the sweet orange. They were intended for the neighbourhood of this city, and appeared in the "Florida Herald." The increasing extension of this valuable tree in this country, and in the Southern parts of Georgia, where it is probable that our "Herald" has but a limited circulation, induces me to offer them for publication in the "Southern Agriculturist."

We suffer evils in the character of our oranges; and not from causes resting on circumstances beyond our control, but those that are the consequences of egregious neglect, and stubborn prejudices. It goes abroad, and not of yesterday's birth, that Florida oranges do not *keep* as well as others. Why so? Only observe the manner in which, by far the larger part, are gathered from the trees, and the question will then follow, how can they keep well? They are not more mercifully handled than Irish potatoes or ears of corn.

A two bushel bag, slung at one corner with a rope, and filled, effectually brings the elasticity of the bag, and the weight of its whole contents, like a screw, on the lowest

fruit; and but few are without their portion of this combined injury. Here they are unwholesomely pressed, to begin with. Those bags are then discharged at a rap, bottom upwards, on a hill of thousands. The next process is to count them, from one hill to another. This is generally done by taking up in the two hands, five at a time, and pitching them to a new hill, instead of taking a step or two and laying them down gently, or removing them in small shallow two-handed baskets; or, they are let fall, by the fives, into a barrel, box, or cart, prepared for their reception. And little or no care is taken to throw out those that have their skin torn by awkward plucking from the tree, or have accidentally fallen from it.

The next mode, and that most in use at present, is for the picker to fill three or four pecks into the bosom of his shirt, and having descended to the ground, he casts loose the lower part of his shirt, letting go the whole in a body, on to hard ground and small shells, or on the pile he is accumulating; or, bending a little forward, he pitches them out through the bosom part. And so on, in the road to wrong, through every branch of their handling.

The method used by Mr. Fish, the elder, (a native of New-York, who resided here during a large part of the former Spanish occupancy of Florida, the whole of that of the British, and a part of the late Spanish possession, highly respected for his information, his practical philosophy, his philanthropy and wealth; who, seventy odd years ago, possessing in this country half a million of dollars in property, planted with his own hands, and cultivated until his death, in 1790, the far famed grove, El Vergel, on the island in front of us, of which but a wreck remains; and whose industry gave celebrity to the oranges of Florida, even in the city of London, where he annually sent them in presents to his friends who had emigrated from hence, and where they usually arrived in fine order, though not taken from the tree till they were fully ripe,) was simply this. They were gathered on a dry day, by a person on a ladder, who tossed them one by one to another on the ground, who caught them singly in his hands, and laid them carefully down. From that they were removed to an airy room with a boarded floor, and spread singly for a few days; and then, slightly papered. They were packed in common flour barrels, without being bored full of holes, as is much, but uncessa-

rily, practiced now. Tenderly handling them was his greatest care. The spreading them on a boarded floor to dry a little, and papering them, was done only for an European voyage. For shipments to the North, the barrels were taken under the trees and filled, headed and shipped at once.

His worthy son followed with success this mode of gathering, to his decease, twenty-two years, and it has been uniformly mine.

Mr. Fish, the elder, sometimes cut off the orange with a pair of scissors—it was not his general practice. Nor does my experience say that it is a good one, for, besides being tedious and troublesome, if as closely cut as scissors can effect it, there remains a prominent stump, that lengthens and hardens as the fruit shrinks by drying, and which must press unkindly against its next neighbour's side, where that stump comes in contact with it. Besides, if we consult nature, she will inform us that every fruit is provided with a joint at which to part from the parent tree. Therefore, it is only necessary to give the fruit a smart side twitch, and it parts at that very spot, leaving no projecting stump. If plucked by pulling the fruit directly off from the limb, (unless it is at that point of ripeness at which nature says, 'let go!') many will have their stems torn away with a part of the fruit adhering to it, consequently be spoiled for keeping. This mode of picking and catching may at first appear slow, but it will be found to be more expeditious than by bags, bosoms, or baskets, after a little practice.

Another evil, just hatched, partial in itself, therefore in the same ratio unfair, is, that all oranges which grow on the west side of Maria Sanchez creek, will not keep as well as those on the east side, and the only reason to be had is merely opinion founded on their having a thinner skin. Now the fact is open to every inquirer, that our light sandy soil will produce the finest fruit; and in oranges, this growth is marked by a thin skin, but none the worse for keeping, I am satisfied from long experience. And these were the very kind Mr. Fish sent as presents to his friends in England, indeed, his famous grove, which bore the bell of Florida, produced but few others—the land being generally of that light and sandy nature. Our better pine lands, old cotton and corn fields (originally in light hammacs,) produce finer fruit of every kind raised in this country, than heavy soils, highly manured.

I once sailed in a large schooner for New-York, loaded principally with oranges, in the month of December, the oranges then ripe. We made our port the eighth day, when we were headed by one of those terrible North-westers, which occur on that coast at that season, and suffered a continuation of wretched weather for twenty-one days after, and at length we got into Norfolk in great distress. My oranges, both thick and thin skin, and those of some other owners who were equally careful in the handling of theirs (I mean in *seeing it done*, not relying on servants) were, after such a voyage of twenty-nine days, in tolerable order; and sold for $5 per hundred by the barrel, while those of others were churned up into about a bushel of mud in a barrel. The difference, I am convinced, arose altogether from care in the handling.

Your respectful and obed't serv't,

GEO. J. F. CLARKE.

ART. XIII.—*On the Mode of Constructing Terrace Threshing Floors; by* ŒCONOMY.

Mr. Editor,—Permit me through the medium of your useful journal, to state the mode of constructing terrace threshing floors, the art of which has been nearly lost, in consequence of having been superseded, by a substitution of plank.

Having cleared of heterogeous matter, an area of sufficient extent, surround the same with good scantling of four by six inches, and give it the form of an inclined plane, with a declination of an inch to thirty feet. Continue to boil tar for about ten or twelve minutes, after the ebullition commences. Ladle it into tubs, and pour it evenly over the prepared area, and in regular strata, entirely across the enclosed space. Scatter with the hand, sifted sand over the stuff, as fast as it is poured out, until the whole is covered, and until it is quite saturated, which will be ascertained by some of the sand remaining unabsorbed. Having thus completed one stratum, it must be consolidated, by regular compression, with clappers, made of plank or slabs, a foot or more square, with a convenient handle inserted vertically in the centre—as many of these as convenient, to be used at

the same time—the operators moving in regular order quite across the floor. Having finished one stratum, you may immediately proceed to lay on a second, and then a third, observing the same method with each.

It is desirable to have boilers of sufficient capacity to finish a stratum in one day, but should that not be convenient, or should there be interruptions of the work, you may continue it from day to day, only take care to sand all the stuff, as soon as it is poured over the space. A floor of three strata may be used for one or more years, and then an additional stratum laid upon it. In proceeding with this work you will find in places, the tar separates from the sand, and springs above the common surface, in such cases dash sand upon them, and they will combine and subside.

Your work having been finished, you must keep the surface covered with sifted sand, until cool weather, and prevent animals from going on it, for it will continue soft under the influence of heat, until it has been used for a season or more. The sand should be sifted through wire of the mesh used for passing the small rice, and all chips, &c. carefully taken from it. Large calabashes or empty paint kegs, with handles inserted, are cheap and convenient utensils for dipping the prepared tar from the boilers, pouring it into the tubs, and spreading it over the floor. A floor made in the summer will be fit for use early in the winter ensuing, and will last without repair for fifteen or more years; it will then, with repair, continue useful as long, or a time longer. Such a floor saves much waste of grain threshed on it, is useful for curing hay or fodder, or any drying process, and may be used immediately after rain, for it will not absorb moisture. A floor 116 feet by 56, of four strata, has been constructed with fifty-five barrels of tar, which can frequently be had at Georgetown at $1 per barrel, and the freight to Charlestown is, I think, 50 cents per barrel.

Having presented these data, I will not run a comparison between the cost and advantages of the plank and terrace floor; already I feel reproach for occupying so much space in your book, but leave it to my brother planters, in whose abilities to determine what is most for their benefit, I have full confidence. ŒCONOMY.

P. S. I think one of the size mentioned above, will accommodate about eighty workers, and May or June a proper season for executing the work.—*Ed.*

PART II.

SELECTIONS.

ART. I.—*An Address delivered in Charleston, before the Agricultural Society of South-Carolina, at its Anniversary Meeting, 18th August, 1830; by* JAMES CUTHBERT, *a Member.*

Mr. President and Gentlemen,—The anniversary of our Society having arrived, I now appear before you in the performance of the duty assigned me of addressing you. I trust, that even if I disappoint you in not contributing to your edification, I shall, at all events satisfy you that I have not been unmindful of what I owed the Society as one of its members, by exerting my best efforts to comply with your wishes.

As addresses have become one of the usages of our Society, it is to be hoped, that from its perpetuity, many opportunities will be afforded to receive useful information in this way. Where a series of addresses, then, are expected to be delivered, each should be confined to a particular subject, which should be treated of in the fullest manner that its nature, or the ability of the writer would admit. In the course of a few years, we should then have embodied a collection of practical facts, more extensive, more satisfactory, and more useful, than could be obtained from ten times the number of addresses, each embracing a multiplicity of topics at once.

With this impression I shall proceed to introduce, at this time, to the consideration of the Society, one of the most important branches of our calling, viz: *cattle stock, as a source of manure.* On entering on this subject, however, I entertain no little apprehension that I shall fail in affording sufficient interest to engage your attention, and claim your patience; from the circumstance, that many might be disposed to think, as it was one that had already been fully treated of in books which they had read, therefore any thing now said must be stale. The almost innumerable productions which have been published in Europe and this country on agriculture, and the different branches connected with it, would lead one to suppose that every subject which could come under consideration, had had its full share of investigation. This is almost true with regard to some parts of Europe, and even of the United States. But with respect to our own *State*, our peculiar situa-

tion has precluded us from a full participation in the results of those labours which have been so industriously performed for the benefit of other parts of the world. How frequently do we hear it said by some of our planters, whose book information far exceed their practical knowledge, that this or that plan can very well be carried into execution, at the North and in Europe, but not here, because they have different materials to act upon. And certainly it would appear from the little progress which we have made in the improvements suggested by the distinguished agricultural writers of other countries, that we have not known how to set about them. Were we to examine more closely into the true state of things, we should probably find that the difficulties to which we allude, lie where we are least disposed to look for them; and discover that by proper attention and exertion, we would soon overcome them.

There is probably no subject connected with our pursuits which has claimed so little of the attention of the planters of our State, either theoretically or practically, as that of cattle. They constitute one of those departments, which some from education and habit, are disposed to neglect, and others considering it as requiring too much nicety and regularity of arrangement, condemn as troublesome, expensive, and unnecessary. I am convinced were this subject more seriously considered by planters generally, there would not only be a total revolution in their opinions, but in the agricultural condition of the country. It is not surprising that what has not been regarded as essentially necessary to our prosperity should, in a great measure, be overlooked, and it cannot be denied, that until within a very short period, cattle have had, comparatively, little or no value attached to them in the eyes of the planters, in an agricultural point of view. They have stood in the same relation to plantations that pieces of unenclosed wood land have; to be used from time to time, as the necessities of the plantation required, regardless of waste and destruction. If a planter wanted a beef for the supply of his household, or a steer for the yoke, he would send his negro to hunt one up, uncertain what kind of a one he would find; just as he would order him to look out for a piece of timber, for some immediate plantation job, whilst he was doubtful whether there was any such on his premises.

To estimate fully the value of cattle, it is necessary to study with some attention the various uses to which they might be applied; and to reflect whether these are not likely to be productive of the most permanent and important advantages to us. Cattle properly managed on a plantation, are useful as a source of manure—as contributing greatly to the comfort and support of our slaves—as furnishing under the most favourable circumstances, a most useful class of working animals, and as a source of income.

As the limits of an address would not allow of a satisfactory examination of each of the above enumerated heads, I shall confine my remarks on this occasion, as already proposed, to the first, viz. *the importance of cattle as a source of manure.* Each of the others might form the subjects of future addresses for those who might choose to turn their attention to them.

I shall here take occasion to remark, that all the data on which my statements shall rest, have been furnished by my own experiments; and this I state with a conviction, that no other motive will be attached to my being thus explicit, than a wish to satisfy the Society that I am not occupying their time, in listening to idle speculations.

It would be altogether unnecessary to attempt to prove to so enlightened a Society, as the one I address, the great benefits arising from manure, in increasing the product of the soil. If there are any of the members who have not made the experiment of its utility, I am satisfied there is not one, but from his general information, is fully convinced of it. I am rather inclined to think, however, that there are some who are not satisfied that a system of manuring can be carried on in this country to any great extent, so as to be decidedly beneficial; believing that the expense attending the procuring and applying manure, is more than the profits would justify. Such an opinion is unquestionably erroneous.

If it be once admitted that a system of manuring would be highly useful, and should be universally adopted in the husbandry of our State, there could be no doubt of the great importance that should attach to the source from whence the best and most abundant supply of manure could be obtained. Manures are of various kinds and qualities, and are obtainable under various circumstances, which render their uses available or not. Some are so difficult of transportation as not to admit of being used to any extent but in the immediate neighbourhood of the place where they are to be procured; and others are so doubtful in their operation as not to warrant the risque of a too general use of them. It is universally allowed, however, that animal manure is decidedly the most efficacious known; and that, in the way of compost, it can be employed more extensively, with good effect, than any other. This being the case, if it can be shown that a sufficieney of this manure can be procured more easily than any other, in almost all situations; and this with little or no expense, by means of a well regulated stock of cattle, then the importance of cattle to every planter would be completely established. To insure a full supply of the best compost manure, it is only necessary that every planter should keep a number of cattle in proportion to the quantity of land he intends to cultivate, which would require manuring; and these should be treated in a manner best suited to the object in view. A permanent pen should be established, imme-

diately about the settlement, with every conveniency of shelter, where the cattle should be kept more or less the whole year:—a certain number of carts should also be constantly employed for the purpose of hauling in vegetable substances of various descriptions, and carrying out the manure into the fields:—and it would be likewise necessary to keep in reserve, certain situations for furnishing this vegetable matter, which might be woodlands, marshes, and the like.

The proporion of cattle to be kept must depend altogether upon the quantity of manure a given number would yield, and the quantity that would be required to enrich a given extent of ground. It may be necessary to fix upon some quality of land as a standard, which would enable us to point out, in the most satisfactory manner, the advantages of such a mode of procuring manure, and whether it could be compassed with ease by all classes of our planters. We will therefore suppose the quality of the land to be such as to require fifty cart loads of manure to the acre, which would be sufficient, one year with another, for the poorest soil we have. My own observation has satisfied me, that every head of cattle that would be constantly kept up, and properly attended to, with the view of making manure, that is, by being well supplied with water and food, and having it's stall regularly littered twice a day, morning and evening, and a little swamp or pond earth occasionally added, ought to furnish, in the course of the year, at least one hundred and fifty cart loads of excellent compost manure, each cart containing from fifteen to twenty bushels. If every head of cattle, then, will supply one hundred and fifty cart loads of manure in the year, each head would be sufficient to manure three acres, this would require about thirty-three to thirty-four head for every hundred acres to be manured, or in this ratio, as the quantity be more or less.

Four carts, carrying from fifteen to twenty bushels of manure, or twenty-five bushels of trash, drawn by two small oxen,* and driven by a boy between twelve and thirteen years of age, would be fully adequate to supply the yard with litter for thirty odd cows, and carry out the manure; even allowing the distance to average half a mile. But it should be distinctly understood, that they should not be employed for any other purposes.

The quantity of wood land, if the wood be thick, or marsh for furnishing vegetable matter, would be one acre, together with the offal of two acres of the field, such as corn-stalks and the like, to each animal. An acre of wood land, consisting of a thick growth

* The following considerations are important as to the carting department, viz: that the oxen should be young when broke, and not more than two years old, and small, and the yokes and carts suited to their size. When oxen are broken young, they are better disposed and more active; and when small they are less costly at first, consume less food, and are more manageable by boys.

of pine, with a considerable under-growth, will furnish between two and three thousand heaped up bushel baskets of trash or leaves, in the winter, after the leaves shall have fallen, notwithstanding it had been raked the year previous.

As cattle are easily to be procured every where in the country, or at all events, are easily driven from one place to another—and as there is scarcely a settlement but possesses the advantage of most abundant materials for making compost manure, there can be no doubt but that to insure a sufficient supply of manure, for all purposes on a plantation, must depend alone upon the attention, care, and industry of the planter or manager. The farm-yard should always be plentifully supplied with trash, and this should be turned over from time to time, to hasten decomposition. It is also advisable to remove this as soon as it is perceived to be sufficiently incorporated with animal ordure, even if not wanted for immediate use, with a view to stimulate to more active exertions in filling it up again.*

* *Soiling Cattle.*—Soiling cattle has been so unusual a practice in this State, that most planters seem to doubt whether sufficient support could be afforded for a given number throughout the year. The very circumstance, however, of setting apart labour expressly for the maintainance of a stock of cattle, as recommended, would of itself solve all difficulties on this head. It would be just as easy to make an abundance of provisions for a certain number of cattle, as for the negroes on a plantation, if we designed it.

There is no country in the world which affords greater facilities for soiling cattle, than the one we live in. Independent of the plentiful offal which most of our crops yield, nature is so bountiful in her spontaneous productions, which are both palatable and nutricious to animals, that even in cases of serious injury to our crops, we could never be at a loss; in addition to these, our climate is such, that there is not a month in the year but a continued vegetable production could be carried on. Every labourer set aside, as proposed, for the purpose of providing for the support of the cattle, should be made to cultivate two acres of ground, at least in some kind of crop. This ground should be laid off immediately about the farm-yard, and should be kept in complete order the whole year. The articles that might be cultivated to advantage, are turnips, carrots, cabbages, oats, corn, peas and potatoes. These might be divided into winter and summer crops. The former to consist of turnips, carrots, cabbages and oats. The latter of corn, peas and potatoes. The successful cultivation of either of these crops would certainly depend, in a great measure, on the nature of the soil in which they are planted. Therefore, every planter must determine for himself, according to the character of his soil, of which of these crops he would plant most extensively. Turnips and carrots require proper selections; but with regard to cabbages and oats they will produce exceedingly well in most soils, if carefully prepared. The common drumhead cabbage is an excellent vegetable for the food of cattle; neither skill nor great nicety of culture are requisite in rearing it. And by merely stripping the under leaves, it continues for a considerable time to afford a reproduction that seems inexhaustible; and when it has progressed to the stage of seeding, the stalks, by being cut up, by a cutting knife, afford as much nourishment, if not more than any other part of the plant. The oats could be cut and fed away in their green state.

On all rice plantations the immense bulk of rice straw which is necessarily at hand, is sufficient of itself to support a stock of cattle two-thirds of the year, if prudently disposed of. Let the plan of housing cattle be adopted.

With regard to the expense of a manuring establishment, any arrangement on a plantation is to be considered as an expense only, when it does not make a full return of interest for the amount laid out, and cover all current charges. A necessary stock of cattle then, with suitable arrangements for making manure, ought not to be regarded as an expense, but as much an investment as a rice mill, or even the lands and negroes: For a farm-yard judiciously constructed and managed, would be found to be as important a piece of machinery for making a crop as any that could be erected for preparing it for market, when made: and when its real value was once well understood, would excite equal interest, and receive the same attention.

If a farm-yard then, with all its necessary appendages be regarded as an investment, it may be proper here to give some estimate of what might be the amount requisite to be appropriated. These would be—1st. the cost of the cattle—2d. the erection of suitable shelters for them—3d. carts for hauling manure—4th. the labour necessary in attending to the establishments, and providing for the cattle.

And let the straw be used only as food, and the planter would be surprised at the quantity of provender which he would have: and there would be no less quantity of manure. The manure in which straw is now used, is certainly the most wasteful imaginable. Not one-third of that which is thrown out to the cattle is consumed by them. For, being repeatedly thrown on the same heap, it soon becomes heated by the moisture arising from the ground and rain, and is so completely mixed up with dung and urine, that the cattle must be half famished before they can be induced to eat of it. It cannot be denied that the main object on these plantations, in relation to the straw, is to get rid of it as speedy as possible. Its least value being that as food for cattle.

The hay made from the salt marshes which range through such an extent of that portion of our country, exclusively adapted to the high-land culture, affords a most excellent substitute for rice straw, and is undoubtedly, of all the spontaneous vegetable growth of our climate, the most valuable as fodder. It is consumed by horses, cattle and sheep, with great avidity, and seems to afford more substantial nourishment than hay produced from almost any other species of grass, connected with its excellence as food, it has this decided advantage, that it may be collected without haste or waste. It can be gathered, of the best quality, from the beginning of May to the first of October, and in case of need, could be used to advantage, even when cut in the winter. It is easily cured. Two days sunning is sufficient. And should it rain when it is spread out, it should be allowed to remain until dry without stirring it about—it is not injured by wet, as either corn blades or common grasses. It should be put into small stacks as soon it is dried, so that in the event of a continuation of bad weather, any appearance of heating be perceived, it could be easily pulled down and examined.

All the offals of the fields, such as corn husks, pea and potatoe vines, and hay, should be collected from the fields, as speedily as possible: after the crops shall have been harvested, and carefully put away, either in stacks or houses, as the conveniences may be, to be distributed to the cattle as wanted. The products of a field used in this way, would support a stock of cattle a very considerable time longer, than when allowed to be consumed in the usual way, by turning the cattle into the field to wander about as they please. The frost soon destroys the flavour of every species of food, and the cattle become indifferent to them; consequently they pass over and trample a quantity without deriving any advantage.

If we take one hundred acres as the quantity of ground to be manured, from the premises already laid down, thirty-three head of cattle would be required for furnishing the manure that would be wanted, these could be obtained at a reasonable rate, say $10 per head. The thirty-three head would amount to $330.

The necessary shelter, which might be common sheds, need not cost more than $100, even under the most unfavourable circumstances; and when the materials and workmen are on the plantation, it could hardly be said to cost any thing. If a planter chooses to gratify his taste, he might make the expense what he pleases; or when other advantages are united, such as a commodious loft for stowing away perishable fodder, three times that amount would be perfectly justifiable.

The labour, or otherwise the hands that would be required to attend to, and provide for thirty-three head of cattle, would be one responsible negro man, who should be at the head of the concern, two boys between the years of ten and twelve, and the old and infirm of the gang of negroes. I would say two to every ten head of cattle, these might occasionally be assisted by the invalids, who, though too unwell to do the ordinary work of the plantation, might be benefited by the employment proposed. The duties of the former, (the man and the little boys,) should be to feed, water and clean the cattle, litter the stalls and yard, and keep them in proper condition daily; the latter to provide for the cattle—collect trash from the woods and elsewhere—dig up the farm yard, and free the plantation from weeds and other nuisances. I must not be understood as meaning to say, that one man would be required for every thirty odd head of cattle, for, with any character or capability, one, with due assistance from boys, would be able to superintend an hundred head or more.

The value of the above enumerated slaves would be as follows:

The fellow as superintendant, - - -	$400	
Six old infirm hands, $200 each, - -	1200	
Four boys for carts, $300 each, - - -	1200	
Two boys employed with fellow, $200 each, -	400	
	—3,200	
To this add for the cattle, - - -	330	
Sheds for the same, - - -	100	
Four carts at $35 each, - - -	150	
	— 580	
		—$3,780

I am aware of the effect that the idea of employing a dozen negroes, alone in feeding cattle, or of investing $3,780 in an establishment for making manure, will have upon the generality of our planters, on the first view of the subject. However, let them reflect for a moment, and compare the interest of such an amount, or the hire of the negroes, or the probable value of their labour, with the profits that could seldom fail to arise from such an invest-

ment; and let them keep in mind, that a very trifling part of this sum is to be made up out of their incomes, that it is the mere setting apart a comparatively unproductive portion of a capital they already possess, to be more profitably engaged, and they must soon become convinced, not only of the reasonableness, but the excellence of the plan.

To prove the importance of such an appropriation, we must show that there is no way in which this amount could be employed by us, as agriculturists, to the same advantage. The interest on the supposed value of the negroes, $3,200, would be $224. The hire of twelve negroes, such as described, at $30 each, per ann. would be liberal, this would give $360. In field work, it would be presumed the five boys would be too young to contribute much, consequently there would be but seven hands employed. Now a crop of thirty barrels of rice, or six bales of cotton, one year with another, to such inferior hands, could not be considered too low a calculation. The amount of the labour of these hands then, at the present prices. would hardly exceed $400. Suppose, then, that a planter cultivated corn alone, I would ask, if his lands had been long under cultivation, without the aid of manure, what difference he would expect in the yield of two acres, one of which had had fifty cart loads of the best compost manure applied to it, and the other none at all? I would be willing to answer for him, ten bushels at least the first year, and ten added to that the year following, and even ten added to that the succeeding one. However, allowing that twenty bushels, one year with another, would be the difference between manured and unmanured land, what would be the result? A planter cultivating one hundred acres of corn, without manure, realizes ten bushels to the acre, which gives one thousand bushels as his crop. Another year he manures at the rate of fifty cart loads to the acre, and gets thirty bushels to the acre, which gives him three thousand bushels, as his crop. Now the difference between the two crops, would be two thousand bushels. These two thousand bushels, at the rate of 60 cents per bushel, which is lower than our flint corn has generally sold for, would give $1200. Here, then, would be $800 clear gain over and above the most favour able employment of the hands.

These calculations, of course, apply equally to cotton planters, and sufficiently so to tide swamp planters, to claim their particular attention; for though they might deem it inexpedient to manure their river lands, still it is a great object with them to make a sufficiency of corn, peas, or potatoes for the provisions of their plantations; and certainly, the more they make of either of these crops to the acre, the less quantity of land they need cultivate in them; and all the labour deducted from the corn, &c. would be added to the rice—and this the most efficient labour of the plantation.

The setting apart a distinct class of persons to take charge of a cattle establishment for the purpose of making manure, is essential in order to Insure a proper support for the cattle, and a sufficient accumulation of manure in due time—as the cattle are not to be pastured, but constantly kept up, unless turned out for a short time every day, for exercise, which should be the case, food and water must be carefully provided for them, and given to them at appointed times. A system of manuring also, requires much exactness in the employment of time and labour. The process of making manure, should be going on the whole year, so that a sufficient quantity should always be prepared to be carried out into the field, before the time for planting arrives. Of this, the ordinary occupation of the plantation would not admit. There would always be conflicting duties, which would eternally embarrass—and it is this which has occasioned the difficulties that planters have experienced in manuring, and been willing to yield to. It is out of the question for any planter, however intelligent or industrious he may be, to manure any thing like the quantity of land he would require for his force of hands, according to the usual mode of conducting plantation business.

The only objections which might be urged to the plan proposed, by those who have never turned their attention particularly to the subject, are, that it would occasion too much trouble, and that a concern of the kind could not be conducted on a plantation by negroes, unless under the constant eye of the master. I will venture to assert that any planter of the least method, who would try the experiment, would find things to turn out very differently from what he had anticipated. The beginning of the business would be the only troublesome and difficult part. It would soon be carried on with as much attention and success, as any other department. The true secret is, to make it at once a distinct and separate concern, and one worthy of attention. Abandon the abominable practice of penning cattle here, there, and every where, exposed to all kinds of weather, merely to save the trouble of a little additional carting: and convince those who have charge of the cattle, that they are held in some estimation, by the pains taken in providing for them, and an interest would be soon excited throughout the whole plantation, that would insure the best treatment. The idea that negroes are too stupid and unprincipled to conduct matters of this kind, when left to themselves, is a very mistaken one. If we would take more pains to impart to them our views of things, and instead of merely directing, also encourage, and patiently instruct them, they would be found to be very capable of comprehending and executing our wishes. But the misfortune is, that whenever we undertake to introduce any thing new into our system of management, we are apt to be too off-hand in doing it, and the least disappointment discourages.

Art. II.—*To make Butter in Winter.*

[FROM THE AMERICAN FARMER.]

Mr. Skinner:

Sir,—The avocations of an agriculturist are continually furnishing subjects which afford the most pleasing employment, and especially when the series of experiments, therein resulting are likely to terminate, not only in his own private interest, but in the general good of the community. Some of these subject are of great moment. Others are of inferior consideration. But there is not one so inconsiderable as to be utterly unworthy of attention. To the class of minor objects may be referred the art of making butter in the *winter season*. Although I do not assign to this agreeable article of domestic economy a high rank among the various productions of husbandry, yet as it contributes essentially to the daily comforts of man, it assuredly merits some portion of regard. To the chemical part of this manufacture, my attention has recently been directed by a consideration of the difficulties experienced in the winter season in the dairies, not only of this country, but of every cold country in Europe.

The ultimate analysis of milk, the basis of this delightful production, it is not my intention to discuss. It is enough for the present purpose to state that its proximate ingredients are oil, curd and whey; and that it is from the oil of milk that butter is made.

The constituent parts of milk are combined by the pores of chemical affinity. And as the oil has less affinity for the other ingredients, than those ingredients have for another, it, by the *temperature of the atmosphere*, is separated from them; and, then, being specifically the lightest, it ascends to the top in the form of cream. This separation of the oily parts does not take place but on the surface, and oily as deep as the warmth of the atmosphere may have penetrated. The obvious result, as verified by universal experience, is that much of the cream, contained in the milk, does not rise to the top, and that consequently all the butter is not made of which the milk is susceptible.

The common practice in the summer season, in this part of our country, is to place the pans of milk in a stream of cold water flowing from a spring either in or contiguous to the dairy house. The coldness of the water, however, does not of itself produce the cream. It only has the effect of preserving the milk sweet, whilst the warmth of the atmosphere causes the cream to rise to the suface. The colder the water may be the longer will the sweetness of the milk be preserved, and of course the longer may be the time allowed for the accumulating of the cream. And hence it is, that the water is valuable in proportion to its coldness.

The common practice, in the winter season, is to place the pans in some warm, clear apartment, where the temperature of

the air is, as nearly as possible, equable. In this situation the milk has to remain four or five days at least to produce its cream. From milk so old the cream acquires an unpleasant taste, which is necessarily imparted to the butter. But this is not all. The churning of butter from such cream is an irksome operation of four or five hours and sometimes longer. Such a tedious process is not only extremely tiresome, but it moreover has a tendency so to affect the butter as to render it white. And white butter is invariably insipid.

As cream ascends to the surface more sluggishly in winter than it does in summer, a much larger portion of it remains in combination with the other ingredients of the milk, and of course the butter made from a given quantity of milk, is less in winter than it is in the summer, as well as inferior in quality.

As the rising of cream in the winter season requires the milk to remain for several days, and as butter of the first quality cannot be made from cream skimmed from milk that had been standing such a length of time, a process is desirable that would cause the cream to rise as soon in winter as in summer. Under such a process, a dairy establishment in the vicinity of Baltimore, has for some time been conducted. Reasoning from analogy, it was inferred that warm water might be substituted as a medium likely to produce the same effect in winter, that the warm atmosphere does in summer. This hypothesis has been satisfactorily confirmed by an experience of several winters. The warmth of the water, penetrating the whole body of the milk in the pan, affects alike all the several parts. The oily parts which constitute the cream, are by such pervading heat separated from all the other ingredients; and then, from their specific lightness they rise to the top. As all such oily parts are affected by the warmth of the water, they all have a tendency to ascend. Cream, abundant, sweet and rich, is under this process during the coldest weather in winter, obtained in the course of forty-eight hours after the milk has been taken from the cow. And the operation of churning such cream never exceeds twenty-five minutes. Cream, thus quickly produced from fresh milk, will, in the nature of things, with ordinary attention, be perfectly sweet, and the butter therefrom, if made by a skilful person, cannot fail to be invariably of a fine flavour.

Art. III.—*Feeding Swine.*

[FROM THE NEW-ENGLAND FARMER.]

Swine should not be kept in close and filthy pens. Although they are supposed to be naturaliy filthy animals, they thrive better, and enjoy better health, when allowed clean and airy lodg-

ing. The late Judge Peters, of Pennsylvania, in an article entitled, "*Notices for a young farmer*," &c., observed that, "There is no greater mistake than that of *gorging* swine, when first penned for fattening. They should, on the contrary, be moderately and frequently fed; so that they be kept full, but do not loathe or reject their food, and in the end contract fevers and dangerous maladies, originating in a hot and corrupted mass of blood. In airy and roomy, yet moderately warm pens, paved or boarded, and often cleansed, they are healthy and thriving. They show a disposition to be cleanly, however otherwise it is supposed, and always leave their excrementitious matter in a part of the pen different from that in which they lie down. No animal will thrive unless it be kept clean."

The same writer asserts that fatting hogs should always be supplied with dry rotten wood, which should be kept in their pen for the animals to eat as their appetites or instincts may direct. It has been supposed, likewise, that swine thrive better when they can obtain fresh earth, which they are often observed to swallow with greediness. Charcoal, it is said, by some, will answer as good, if not a more valuable purpose, and that if swine can obtain charcoal, they will not only greedily devour a portion of that substance, but will be but little inclined to rooting, and remain much more quiet in their pens than under ordinary treatment.

The modes in which swine are fattened in some of the Western parts of the State of New-York, are stated to be these. "About the first of September, begin with boiled potatoes and pumpkins, mashed together with a little Indian meal, ground oats and peas, or other grain, stirred into the mixture after it cools. From two to four weeks before killing time, the food should be dry Indian corn and clean cold water. Mr. Yonghans fattens his hogs in a large yard or field, with a shelter in it to which they may retire to sleep. But Elder Turner says, hogs should never know what liberty is; but should be kept close all their lives, and as inactive as possible. That with this method double the quantity of pork can be produced with the same expense of food.*

Rubbing and currying the sides of the hogs while fattening, is said to be of great advantage to them. It is not only very gratifying to the animals, but conducive to their health. It will be well, likewise, in every stye to place a strong post for them to rub against. During the time for their fattening they should have plenty of litter, which will be a double advantage, providing for their comfort and increasing the quantity of manure.

There is a great advantage in boiling, steaming or baking, all sorts of food given to swine. The last American edition of the Domestic Encyclopedia, informs that "Mr. Timothy Kirk, of Yorktown, (Penn.) fed one pig with boiled potatoes and Indian

* Memoirs of the New-York Board of Agriculture, vol. i. p. 39, 40.

corn, and another with the same article unboiled. The two animals were weighed every week, and the difference between them was as six to nine. The experiment was continued several weeks, and the animals alternately fed on boiled and unboiled food, with a uniformity of result, which sufficiently showed the very great profit arising from boiled food."

Steaming will answer as good a purpose as boiling, and with a proper apparatus is more easily and cheaply effected.

Carrots, according to Arthur Young, are better food for swine than potatoes, and some other writers assure us that parsnips are better than either for feeding them. An English writer says, "they fatten their pork on the Island of Jersey, with parsnips. They are more saccharine than carrots, and it is well known that nothing fattens hogs faster, or makes finer pork than the sugar cane. Mr. Young also asserts that "the most profitable method of converting corn of any kind into food for swine, is to grind it into meal, and mix this with water in cisterns, in the proportion of five bushels of meal to one hundred gallons of water, stirring it well several times a day, for three weeks, in cold weather, or a fortnight in a warmer season, by which time it will have fermented well and become acid, till which it is not ready to give. The mixture should always be stirred immediately before feeding, and two or three cisterns, should be kept fermenting in succession, that no necessity may occur of giving it not duly prepared." The late Judge Peters, who asserted that "sour feed is most grateful and alimentary to swine. One gallon of sour wash goes father than two of sweet." Some sentiments, however, which are at least apparently in opposition to the opinion of the above celebrated agriculturists, have been advanced by other writers. An English work, entitled "Farmer's Calendar," (author's name not given) declares "that much has been said and little understood about *purposely* souring food for hogs. It is not that acidity can possibly tend to making fat, but it is found that pigs will readily fatten upon soil or rather acescent food, a sweetish taste and glutinous quality succeeding fermentation; and that they will do so still more readily upon such as never reached the acid state, I know, and have seen an hundred of instances." In order to reconcile these writers, it will only be necessary to advert to the different stages of ordinary fermentation, and the products of each stage. The first stage of fermentation produces sugar, and it is called the saccharine fermentation. The second stage developes alcohol, (spirit of wine) and is called the vinous fermentation. The third produces vinegar, and is called the acid fermentation; and the fourth and last stage, converts the matter fermenting into a substance which is not only offensive but poisonous, and is called the putrid fermentation. Thus, if you soak wheat or other farinaceous substance in water of a proper temperature, it will first becomes sweet, and begins to sprout or vegetate:

it will next afford spirit of alcohol; continue the process the wash turns sour, at first slightly, and the more strongly acid; and at last the whole becomes putrid. It probably contains most nourishment when it is sweetest, but is valuable till very sour, when it is worth little or nothing; and when the putrid fermentation commences it is worse than nothing, as food for animals. The wash, then, should be given to the hogs while it is yet sweet, or but beginning to be sour.

Art. IV.—*Experiments on Irish Potatoes.*

[FROM THE AMERICAN FARMER]

"Summerfield, Baltimore county, Jan. 18, 1830.

Mr. Skinner:

Sir,—From mislaying my memorandum I was prevented from giving you earlier the result of a small experiment in the application of several kinds of manure in the cultivation of my last crop of potatoes; and I am convinced we have yet to acquire much information on the subject and the mode of planting this delicious vegetable. I design continuing my inquiries, and shall endeavour to ascertain the cause of decay in that valuable culinary, which fact every practical planter has experienced to amount to a partial destruction of that important article as to quality, I may say quantity, by constantly resorting to the same family for cuttings, which I think calculated to increase the number of eyes without multiplying and improving the quality of the crop. I mean the ordinary mode of cutting. Last year I cut the pieces with much care, leaving but one shoot or eye to each planting. I made about twenty-five bushels; drill, say six inches apart, the rows three feet apart, three and a half acres which in the common way would have taken upwards of fifty. Here was economy at once of fifty per cent. in planting, and I am convinced of one hundred per cent. in the product. Being but one stalk, it was unincumbered with that variety generally putting up and producing only inferior roots, interrupting each other, and affording a great show of vines with but little fruit. I examined my crop in a variety of places, a single stock yielded from six to twelve, and even fourteen potatoes, few unfit for table use. Had I pursued the usual way I might have had a luxuriant crop of vines, with fewer bushels and much smaller potatoes. My impression is that but one alternative exists to prevent this deterioration in the quality of this vegetable. Instead of the farmer resorting to an interchange of plantings with his neighbour, which has usually been deemed the only resort to keep up the original.

we should recur to the seed, the great fountain of existence, and and by this means only perpetuate indefinitely the same species. Vegetables, more particularly protuberously rooted, have their periods of increase, duration and decline, and cannot be expected to yield the same quality beyond a given time. Whether the English and Irish potatoes have been perpetuated by their experience in this matter, or from economy in growing from the seed, I cannot say.

Suppose the grower of onions was to adhere to this mode of planting, would it not be imbecility and extravagance to cut large onions! This is often done, and the flavour and species is at once impaired. From an inconsiderable piece of ground, and a recurrence to the seed he is enabled to grow young onions sufficient for a large crop, the following season; the same practice should be extended to potatoes.

I contemplate planting one hundred and fifty bushels of potatoes the ensuing year, which at last spring's prices amounts to $200, an important item for seed in a farmer's expenses. The labour of cutting and securing that quantity would have preserved seed sufficient to have grown a large crop, and thus much saved to the consumer and cultivator.

My last year's crop was fine, both in size and quality. I sold to a gentlemen of Baltimore a quantity, and he was so much pleased with them, that he required a further supply. I was present at the delivery, and was invited to dine; he recommended the potatoes, I could scarcely believe them to be of the same kind. I made free to inquire of the lady the manner in which they were cooked. I soon learned that the character of the potatoe was destroyed by being put into cold water, and suffered to remain until their meats were done and thus rendered scarcely fit for stock to eat. I would make it a *sine qua non*, in the employment of a cook, whether or not, they understood cooking potatoes. I would here hint to the cook as well as the cultivator, that potatoes should be placed in a vessel of boiling water, and not rely upon steaming them, and cannot be cooked to quick. The water extracts that strong and acid quality common to all tuberous rooted vegetables. We often have them prepared while the cloth is spreading for dinner, say fifteen or twenty minutes. You will perceive from the table below, the great variation in the product, particularly where animal manure was a component. Slacked ashes yielding but trifling, the vines declining much earlier than either of the others, and in early succession those covered with a mixture of animal manure. I planted the second day of June in a light rye stubble, regarding equality of soil, and marked with oil colours, stakes set up to remain until the crop was gathered, and to be more exact I resorted to weight instead of measurement, which is as follows:

No. 1	produced	106 lbs.	manure dry hay.
2	"	155 "	hay and straw with horse and cow ma-
3	"	80 "	corn husks. [nure.
4	"	155 "	hog pen manure.
5	"	108 "	potatoes alone.
6	"	114 "	dry rye straw.
7	"	113 "	cow manure.
8	"	52 "	slacked ashes.
9	"	138 "	chaff.
10	"	100 "	corn-stalks.
11	"	85 "	carpenter's shavings.
12	"	162 "	green grass.
13	"	140 "	oat straw.
14	"	143 "	wheat straw.
15	"	275 "	stable manure above.
16	"	101 "	small brush.
17	"	278 "	stable manure well rotted (beneath.)
18	"	197 "	long stable manure beneath.

I should have tried other kinds of manure, but they were not at hand, and was hurried from appearances of wet weather.

JOSEPH C. COCKEY.

ART. V.—*Outlines of Horticultural Chemistry:—Analysis of Soils.* By G. W. JOHNSON, Esq. Great Totham, Essex.

[FROM THE GARDENERS' MAGAZINE.]

(Continued from page 491.)

Two hundred grains are as eligible a quantity of any soil to analize as can be selected. Previously to analysis, a proportion should have been kept, slightly covered, in the dry atmosphere of a room for several days, to allow it to part with all the moisture that can be obtained from it by mere atmospheric exposure. Two hundred grains of the soil thus dried, should then be placed on a small plate, and held, by means of a pair of pincers, over the flame of a candle or lamp, with a small shaving of deal upon it, until this shaving begins to scorch. The process is then to cease, and the loss of weight, sustained by the soil being thus dried, ascertained. We will suppose it amounts to 30½ grains. The residue must be then gently triturated in a mortar, which properly should be of agate, and sifted through a piece of fine muslin; what remains in the muslin will consist of stones and vegetable fibres; the weight of these must be ascertained, and this

we will suppose amounts to 15½ and 5 grains respectively. The stones must be examined by dropping some sulphuric acid (oil of vitrol) upon them; if they effervesce, they contain chalk; if not, they are silicious and will be sufficiently hard to scratch glass, and will feel gritty; or if they are clay stones, will feel soft, and with little difficulty cut with a knife. That part which passed be through the muslin must now be boiled in a small tea cup full of clean water, for about five minutes; being allowed to cool, and a piece of clean blotting paper, previously dried before the fire and its weight ascertained, employed to strain the liquor through, care must be taken to get every particle of the soil into the strainer from the vessel in which it was boiled, by repeated washings with clean water. When the liquor is all strained away, place the blotting paper on a plate over the candle, with a shaving of deal on the plate, and dry it until the shaving begins to scorch. When perfectly dry, weigh the whole; and then, the weight of the paper being substracted, the weight of the residue, and, consequently, the quantity of matter dissolved by the water will be afforded; this, which consists of salts and vegetable extract, we will suppose, amounts to 4½ grs. The watery solution must be carefully set on one side, and the analysis of the solid parts proceeded with. Half an ounce, by measure, of muriatic acid (spirit of salt) must be poured upon this in a saucer, and allowed to remain for full an hour, being occasionally stirred with a piece of glass or porcelain; this must now be strained by means of a piece of blotting paper as before, the matter left upon it being frequently washed with clean water, and the washings allowed to pass through the paper to mingle with the other acid liquor; the matter left upon the paper being perfectly dried and weighed, and the loss ascertained, we will suppose this to be 20 grains. Into the liquor must be dropped, gradually, a solution of prussiate of iron. The blue precipitate which this will occasion, being collected by filtering through paper, and washed as before, heated red-hot by means of an iron spoon in the fire, and then weighed, we will suppose it to weigh 2½ grains; this is oxyde of iron. This deducted from the 20 previously ascertained to be in the solution, leaves 17½ grains, which may be considered as carbonate of lime, (chalk,) though probably with the admixture of a little carbonate of magnesia. The solid matter must now be heated to redness in a spoon, until upon cooling it does not appear at all black; this must then be weighed, and the loss noted; that loss consisted of animal and vegetable matters, we will suppose it amounted to 7 grains. The remainder must be boiled for about two hours with 2 drachms, by measure, of sulphuric acid, mixed with 8 drachms of water, and, when dried at a red heat in the iron spoon, the loss sustained will be alumina, (clay;) what remains will be silica (flint.) We will suppose the first to weigh 15 grains, and the latter 102½ grains.

The analysis will then stand thus:—

Water - - -	30·5
Stones and coarse Sand -	15·5
Vegetable fibres - -	5·
Saline Matters -	4·5
Oxide of Iron - -	2·5
Carbonate of Lime -	17·5
Decomposing Matter, destructible by heat	7·
Alumina - -	15·
Silica - - -	102·5
	200·

The first watery lixiviation, employed to obtain the saline matter, may now be evaporated to dryness; if of a brown colour, it is chiefly vegetable extract; if of a whitish colour, it is principally saline, and probably consists of chloride of sodium (common salt) with the admixture of a little sulphate of lime (gypsum.)

The above mode of analysis I have made as simple as possible, and it requires no other apparatus than a set of grain scales and weights, a little sulphuric and muriatic acids, and some prussiate of potash, the whole of which, sufficient for examining every soil upon a large estate, may be obtained for thirty shillings.

In the above are no processes requiring adroitness in the manipulation, extreme nicety in the operation, or the practised eye of science and experience to conduct. All is simple, requiring nothing but the employment of the ordinary carefulness, and the common sense of the experimenter.

The portion of soil which it is proposed to analyze, should be taken at about three inches from the surface. Neither should the surface soil only be examined, but the substratum also. For it often will occur that the subsoil is of a better staple than that which reposes on it; or is of a quality that is capable of correcting some deficiency in it. Thus a light silicious soil will often lie upon a stratum abounding in alumina, which, by digging or trenching, may be brought to the surface and mingled with it.

The foregoing plan of analysis, it must be observed, is not one so particular as a practised chemist would pursue; but it is one easy, and capable of affording all the facts usually required to be known by a cultivator, viz: the moisture-retaining power of a soil; the quantity of soluble and decomposable matter it contains; and the proportions of its earthly constituents.

It has been urged by some that a great deal of information may be compendiously obtained, by ascertaining the specific gravity of a soil, but of this I could never feel conviction. That a peat soil, that is, one containing a great excess of vegetable matter, is much lighter in weight than such as contain more of earthy constituents, is certain; but such do not require their specific gravity to be taken to detect them. If a soil is but rather above or under the average specific gravity, I do not see how the know-

ledge of that can determine whether the excess of weight arises from silica or carbonate of lime; or the deficiency of weight, from vegetable matters, alumina, or other light constituent. The specific gravity of silica is 2·66; of carbonate lime 2·7; of alumina only 2. The unproductiveness of a soil usually arises from the excess of some one of the usual constituents which are enumerated in the foregoing imaginary analysis, rather than from the admixture of any foreign substance prejudicial to vegetation. In a previous communication (vol. iii. p. 270,) I have given the constituents of a fertile soil in detail, and to what I have stated there I have little to add. I have also stated, in another place, that a soil too retentive of moisture is seldom met with, that cannot be rectified by the mechanical remedy of underdraining. If it is purposed to ameliorate a soil which contains too much alumina, by a surface application, much judgment is necessary. The most obvious application is sand, either from the sea-shore or drift, road scrapings, coal ashes, &c.: but if these are not applied largely, the soil is rendered even worse and more difficult of cultivation; for I have seen such soils, which have had a slight dressing of silicious matters as above enumerated, rendered thereby so approaching in constitution to brick earth, that in dry weather they have become so hard as to defy any power but that of a volcano to break them up. A soil is not rendered sterile by an excess of alumina, unless it contains nearly 50 per cent of it; and to such, nothing short of 40 tons of sand per acre would be of unalloyed benefit.

If a soil is unproductive, from containing too much silica, the obvious application to improve its staple is clay and chalk. Four hundred parts of soil of Bagshot Heath contains 380 parts of silicious sand. It is completely barren. Yet Sir Humphrey Davy, who made this analysis, found that a good turnip soil in Norfolk contained 8 parts out of 9, silicious sand. Such light soils, however, are more manageable, for they are always capable of tillage; and the cultivator can render them more absorbant and retentive of moisture, by means of vegetable manures, calk, &c. Such soils are termed hungry, for the yard manure applied to them is soon exhausted, and for this reason, that its mucilaginous and unctious constituents will not combine, with even a slight degree of affinity, with silica, which they will with alumina and chalk. At the same time, light soils admit rain into their texture, and to carry away their fertile constituents in the drainage waters; and the same openness of texture likewise permits the free access of air to hasten the putrefaction of the vegetable matters they contain, as well as the easy escape of the gases which are evolved, and all which, we have before shown, are equally beneficial to plants. Silica may abound to a much greater extent in a soil than any other of its usual constituents, without being unfavourable to vegetation. Chalk should never be pre-

sent in a soil to a greater extent than 6 or 8 per cent.; decomposable animal or vegetable matter to no more than 10 per cent.; nor can the saline constituents soluble in water, oxide of iron, &c. amount to more than 6 per cent, without injury proportionate to the excess.

Foreign impregnations, causing a soil to be sterile or impairing its productiveness, are rare.

Acids have been ranked among the causes of sterility; but a soil containing any in a free state never came under my notice, or under that of any other practical chemist of whom I have ever read, or with whom I have ever conversed. Some soils, or certain portions of a field not generally so affected, will be found to produce sorrel and other plants abounding in acids; and, as when chalk or any other neutraliser of acids is applied to such spots they cease to produce sour plants; it has been deemed a legitimate conclusion that those plants obtained their acid from the soil, which being removed or neutralised by the chalk, consequently destroyed the plants by depriving them of one of their chief constituents. To say the least of it, such an opinion betrays a very great ignorance of physiology and vegetable chemistry. In the first place, the food obtained by all plants from the soil is perfectly insipid when absorbed, and whilst rising through the vessels in the woods; and no secretion, acid, or otherwise marked, is ever found in it until it has been elaborated in the leaves. It is only to be detected in them, and more manifestly in the bark. The fact seems to be, that plants abounding in acids generally frequent a wet soil, and such soil is rendered less retentive of moisture by chalk; again the contact of chalk with plants containing acids causes decomposition in them, ulcers, and if perpetually presented, death. Lastly, such sour soils, as they are termed, are usually as effectually cleared of acid plants by mixing them with other substances that will render them porous, and by underdraining them thoroughly, as they are by mixing chalk with them. I never heard of more than one soil containing an uncombined acid, and that is in the Island of Java, near Batavia. There is a small stream there which contains free sulphuric acid (oil of vitrol,) its banks being impregnated by it are, of course, barren. This stream flows into another, which, passing rapidly through a tenacious soil, is turbid from the mixture of aluminous particles with its waters. No sooner does the acidulated stream mingle with them than they become clear, for the acid combining the clayey particles forms sulphate of alumina, which is a perfectly soluble salt.

(To be continued.)

PART III.

MISCELLANEOUS INTELLIGENCE.

Horticultural Society of Charleston.—A Society under the above title has been recently established at this place, the objects of which, are to effect an improvement in the culture of such vegetables and fruits as are now grown among us; to introduce new species and varieties, and to encourage a taste for Floriculture and ornamental gardening. The Society has determined on establishing an annual exhibition of vegetables, fruits and flowers, at which premiums will be awarded, for the best specimens. Also, for such others as cannot be exhibited at those seasons. These are open to all competitors, and we hope much good will result from the efforts of this Society to place our horticulture on a more respectable footing. We shall, from time to time, notice its progress, and give publicity to its transactions. The following is a list of the officers:—

Elias Horry, President,
Dr. Joseph Johnson, Vice-President,
Dr. Henry Frost, Corresponding Secretary,
John D. Legare, Recording Secretary,
Augustus Winthrop, Treasurer.

} Dr. S. Henry Dickson, Orator for the ensuing anniversary.

STANDING COMMITTEE.

Rev. Mr. Backman,
Judge Wm. Johnson,
James Cuthbert,
Elias Horry,
Augustus Winthrop,
Dr. Isaac Johnson,
Robert Hume,
J. D. Legare,
Dr. Joseph Johnson,
Dr. Henry Frost,
Dr. Jas. Moultrie,
Joel R. Poinsett.

Dahliahs (now Georginas.)—A good criterion for planting this root is about the time of planting early potatoes for a first crop, but no sooner. They grow well in a rich light soil of almost any kind. In dividing the root, it is advisable to leave, at least, two eyes to each plant, cutting through the neck or crown; the spring is the most preferable time for dividing them, although some do it on taking them up in the autumn. Those who possess a hot-house should put each part in a pot of six or eight inches in diameter, with some good rich mould, so as the crown may just appear at the top of the pot; then place them in the green house, where they will soon make good plants; and when all danger from frost is over, they may be turned out into holes prepared for them.—*Gard. Mag.*

Remarks on the general principles of Husbandry.—1. Whatever may be the nature of your soil, and situation of your farm, remember that there is no soil so good, but it may be exhausted and ruined by bad tillage; and that

there is none so bad that cannot be rendered fertile by good tillage—even barren heath, if it can be ploughed and swarded.

2. The true art of husbandry consists in suffering no crop to grow upon your land, that will so far exhaust your soil, as to lessen the value of your succeeding crop, whatever profit such a crop may afford you.

3. To avoid this, suffer no one crop to grow two years successively, upon the same piece of ground, excepting grass and buckwheat, without the fertilizing aid of rich manures to support the strength of the soil; and then change of crops will generally do best, excepting onions, carrots, and hemp.

4. Every plant derives from the earth for its growth, such properties as are peculiar to itself; this plant, when followed successively for two or more years, upon the same ground, will exhaust the soil of those properties peculiar to itself, without lessening its powers to produce some other plants; this fact is most striking in the article of flax, which will not bear to be repeated oftener than once in seven years, and is common to all crops, with the exception of those mentioned above.

5. To avoid this evil, arrange your farm in such divisions as will enable you to improve all the variety of crops your lands may require, in such regular succession, as to form a routine of five, six, or seven years, according to the nature, quality, and situation of your farm.

6. This method will make poor land good, and good land better. Try and see.—*Montgomery Co. Free Press.*

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Dead Leaves a protection to the Roots of Vegetables.— Place heaps of fallen leaves around the roots of garden vegetables, to protect them from too great humidity, more hurtful to them than the cold, since they are more liable to decay with the damp than to freeze. Some leaves possess in a greater degree than others, the power of throwing off the wet: the leaves of the oak are endowed with this quality in an extraordinary degree; tender leaves, on the contrary, such as those of the lime tree, admit the wet more easily.—*From the French.*

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Enlargement of Artichokes.—The gardeners in the South of France increase the size of artichokes by splitting the stem into four at the base of the receptacle, and introducing two small sticks in the form of a cross. This operation should not be made until the stem has attained the height it ought to have.—*Ibid.*

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Fontainebleau Grapes.—The superiority of the Fontainebleau grapes is attributed to the following peculiarities of practice, to which we would add the spur method of pruning:—

1st. To the judicious choice of cuttings, the vignerons never making use of any but such as have borne the best and finest fruits.

2d. By planting the vines at a distance from the wall, and by frequently laying the shoots until they reach the wall, the vines acquire abundance of roots upon the surface. Also, by the close planting, from which all undue luxuriance is restrained; by this means the branches complete their growth within the bounds prescribed, and ripen their wood early.

3d. By limiting each plant to only one cordon, with two arms, right and left, the entire extent of both not exceeding eight feet. The energies of the roots, confined to so small a space, nourish the bearing wood more effectually and more equally, and bring the fruit to greater perfection.

4th. To the projecting coping, which protects the vine and fruit from frosts and heavy rains, and intercepts and retains the heat radiating from the surface of the wall and of the soil.

5th. The sloping disposition of the ground also contributes to their success, as it prevents any accumulation of moisture at the roots of the vines and preserves them sound and healthy.—*From the French, in Transactions of the Horticultural Society.*

To preserve Apples and Pears.—Wipe the fruit dry, then take a varnished crock or wide-mouthed jar, at the bottom of which is to be a layer of fine and very dry sand; on this place a layer of fruit, and so alternately fruit and sand until the crock or jar is full. Put a very thick coat of sand on the top, and place it in a dry place. Apples or pears thus treated will keep good all the winter.—*From the French.*

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Apples.—At La Grange, in France, an orchard of ten thousand apple trees has been substituted for the vines of an old vineyard, on strong clayey soil. On such a soil, the cider of the apple, properly prepared, is superior to the wine of the grape.—*Gard. Mag.*

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Food for Cattle.—Every traveller who passes Alsfelt, a little town between Frankfort and Wiemer, remarks the beauty of the oxen employed in agriculture in that neighbourhood, and yet they are only fed on straw and roots, straw being the only fodder raised in that part of the country. It is prepared as follows:

The straw is cut very small by the chaff cutter; it is then put into a cauldron, mixed with potatoes and carrots, and boiled till it forms a kind of jelly. This mixed with a sufficient quantity of water, is served in due portion to the beasts. The animals so fed require no water, and so well do they thrive on this mess, that they are, notwithstanding the summer labor, ready for the butcher at the end of the year.—*Jour. de Soc. Agric. Practiq.*

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Corn Cobs.—It has been pretty accurately ascertained that thirteen bushels of Indian corn in the ear, ground up corn and cobs together, afford *at least* as much nutriment in feeding cattle, as nine bushels of corn without the cobs. The difference is owing to the great quantity of saccharine matter contained in the cobs, as well as in the additional stimulus of distention afforded by the food, which is all important for graminivorous animals.—*Columbia (Penn.) Spy.*

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Process of preserving Milk, for any length of time.—(Bull. des. Sc. Agric.) This process, invented by a Russian chemist named Kircoff, consists in evaporating new milk by a gentle fire and very slowly, until it is reduced to a dry powder. This powder is to be kept in bottles carefully stopped. When it is to be employed, it is only necessary to dissolve the powder in a sufficient quantity of water. According to M. Kircoff, the milk does not by this process lose any of its peculiar flavour.—*Quart. Jour.*

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To preserve Butter.—Instead of using common salt, take a mixture composed of one part of sugar very finely powdered, one of purified nitre, and one of purified sea salt. An ounce of this mixture is to be put to each pound of butter, and well worked in; when this is done, the butter should be put into crocks, and carefully covered over with parchment.—*Arcana of Science.*

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Ants on Peach Trees, are not the cause but effect of injury. Before the ants become troublesome the trees are infested with the Aphis, *puceron,* which produce what is commonly called honey-dew, and which is their excrement, to which the ants resort for food. To destroy the Aphis frequently syringe the trees with water mixed with a strong decoction of potato haulm and elder leaves, which is found to be most effectual. As a bait for the ants, use the refuse part of melons, sent from the table of the family; when this is not to be had, turnips cut and rubbed over with honey; by which thousands may be taken.—*Gard. Mag.*

Duels of Bees.—In those fine spring days in which the sun is beautiful and warm, duels may often be seen to have taken place between two inhabitants of the same hive. In some places the quarrel appears to have begun within, and the combatants may be seen coming out of the gates eager 'for blows.' Sometimes a bee peaceably on the outside of the hive, on walking about, is rudely jostled by another, and then the attack commences, each endeavouring to obtain the advantageous position. They turn, pirouette, and throttle each other: and such is their bitter earnestness, that Reaumer has been enabled to come near enough to observe them with a lens, without causing a separation. After rolling about in the dust, the victor, watching the time when his enemy recovers his body, by elongating it in the attempt to sting, thrusts his weapon between the scales, and the next instant its antagonist stretches out its quivering wing and expires. A bee cannot be killed so suddenly, except by crushing, as by the sting of another bee. Sometimes the stronger insect produces the death of the vanquished by squeezing its chest. After this feat has been done, the victorious bee, constantly remains, says Reumer, near his victim, standing on his four front legs, and rubbing the two posterior ones together. Sometimes, the enemy is killed in the hive; then the victor always carries the corpse out of the city and leaves it. These combats are strictly duels, not more than two being concerned in them; and this is even the case when armies of bees meet in contact.—*History of Combats.*

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Peculiar Phenomena of Humidity.—In the Memoirs of the Petersburgh Academy, it is stated that, in the district of Gori, in Russia, at the foot of the Ossetin Mountains, there is a hill, on the stony surface of which, the humidity that exudes from the rock in summer and in fine weather is converted into ice, of a thickness proportionate to the heat of the sun. This ice disappears in the night, or during cloudy weather so completely that the rock is scarcely damp. The water obtained from the melted ice appears, upon analysis, to contain only a very small quantity of lime, and no other foreign matter.—*New Monthly Mag.*

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Rules for determining the Temperature of a Country.—The fact that a degree of latitude is equal to a degree of Fahrenheit, and that 400 feet of elevation is equal, also, to a degree of Fahrenheit, is original and curious, and will go far to assist us in determining the clime of any country.—*Amer. Quart. Rev.*

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Relation of Rain on the Moon.—M. Flaugergues, who has studied very closely the action of the moon upon our atmosphere, by observation carried on during twenty years, has constantly found a certain relation between the number of rainy days and the phases of the moon. A constant observation, he says, has proved that it rains more frequently when the barometer is low than when it is high. On the other hand, observation shows that the barometer is lower in the first quarter of the moon than in the last, and lower when the moon is in perigee than when it is in apogee. From which it necessarily follows that there ought to be more rainy days in the first quadrature of the moon than in the second; and, similarly, there ought to be more rainy days when the moon is in perigee than when it is in apogee; which is in perfect accordance with numerous observations.—*Antologia.*